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TREATISE
ON
DISEASES OF THE LARYNX
AND
TRACHEA:
EMBRACING THE DIFFERENT FORMS
OF
LARYNGITIS,
HAY FEVER, AND LARYNGISMUS STRIDULUS.

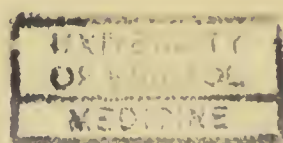
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INTRODUCTION.

DURING the last few years I have been much occupied with the study of the diseases which form the subject of the following pages. Owing, perhaps, to the obscure nature of some of them, they have attracted much less interest than they deserve. The local application of caustics has, however, been found so efficacious in their treatment that I have been induced to believe the results of my experience may not prove unacceptable to the profession.

This mode of treatment appears to have been first employed by our distinguished countryman, Sir Charles Bell, who little conceived how valuable it would eventually be found, or how extensively it would be employed. I cannot do better than quote one of his own cases, which he published in 1816, in a work entitled "Surgical Observations, being a Quarterly Report of Surgical Cases."

"I was requested," says Sir Charles Bell, "by Dr. Southey, on the 18th of April, to visit a patient

of his in the hospital, who had been ill since Christmas. She was at that time attacked with cold and sore throat, and from the beginning she could only speak in a whisper. Her voice has never returned, and at present her whispers are scarcely audible. For three nights she has not been able to lie down. She expectorates a great deal of mucus and pus ; pulse 63 ; breathing 42 ; her breathing has a harsh sawing sound. On the evening of the 18th, the hospital attendants becoming alarmed at the condition of this woman, I was sent for at eleven o'clock. She was sitting up in bed, breathing with difficulty, but her countenance was of a red colour ; the violence of the fit had subsided, and the blueness had been succeeded by redness and fulness. Dr. Southey came in. We wished to see her swallow ; she tried a little broth ; much of it went into the windpipe, and she had a great struggle in recovering. We concluded that the epiglottis was eaten away by ulceration. Having ascertained, by putting my finger over the root of the tongue into the glottis, that it was rough and irregular with ulceration, I proposed to touch the surface with the *argentum nitratum*. It was considered hazardous ; but some-

thing was necessary, and I was confident that the application would allay irritation.

“ I made a small pad of lint, and attached it to the ring of a catheter wire, and bent the wire so as to pass over the tongue and epiglottis; I dipped the lint in a solution of twenty grains of the caustic to half an ounce of water, and touched the glottis with it in this manner. With the finger of my left hand I pressed down the tongue, and stretched the forefinger over the epiglottis; then directing the wire along my finger, I removed the point of the finger from the glottis, and introduced the pad of lint into the opening, and pressed it with my finger.

“ On withdrawing the lint, instead of coughing, she began to speak more audibly than usual, and had neither cough or spasm from this rough operation. I repeated the application four times, and her breathing was sensibly better when I left her.”

The foregoing case incontestably proves him to have been the originator of this mode of practice; and although the treatment was admitted to be hazardous, his sagacious mind did not fail to recognise the great fact—that the application would allay irritation.

After the lapse of several years—for we do not

find that Sir Charles Bell continued to employ this treatment—the practice was revived by the late Mr. Vance, a naval surgeon of considerable eminence in London in his day. Mr. Vance does not appear to have left any record of his labours on this subject. I have been informed by medical men who were intimately acquainted with his mode of practice, that he never introduced the solution of the nitrate of silver below the glottis, but contented himself with sponging the back of the throat. I, however, believe that he was in the habit of applying the solution both to the larynx and trachea; not only from the great success he met with in practice, but from the ease with which the caustic is applied to the trachea after an entry has been effected into the larynx. So little interest did his successful practice excite in this country, that no one was found to take up the treatment at his death; and, as far as I have been able to learn, it was entirely neglected in London, until revived by myself about four years ago. And although it is still, far from being in general use, I have had the pleasure of explaining it practically to many of my medical brethren, and among them to some of the most eminent in the profession.

A few years after Mr. Vance's death, Dr. Stokes,* in speaking of the employment of the nitrate of silver and other caustics in these affections, observed:—"The best means of applying these caustic lotions is that practised by Mr. Cusack: a brush of lint of the requisite size is sewed on the end of a finger of a glove, which is then drawn on the index finger of the right hand. The patient should be made to gargle with warm water, and the lint, being dipped into the solution, can be at once, and with great facility, carried to any part of the pharynx, and even to the rima." This, then, is another, but a rude instance of the introduction of caustics into the windpipe.

The publication of Dr. Stokes' book was followed by the joint work of Trousseau and Belloc, which contained a fuller account of this method of treating diseases of the laryngo-tracheal tube than had appeared since the publication of Sir Charles Bell's cases in 1816. Besides the insufflation of caustics of various kinds, and the injection of solutions of them by means of a glass syringe, they adopted also the following plan, which is extracted from

* A Treatise on the Diseases of the Chest. Page 258.

an article, by Dr. Williams, on Laryngitis, in the third volume of *The Library of Medicine*, pages 50—51, 1839:—

“MM. Trousseau and Belloc place much confidence in medicaments applied directly to the diseased parts, and some of those which they recommend are of a very energetic kind, such as nitrate of silver, corrosive sublimate, sulphate of copper, &c. They may be applied either in solution or in powder. The solution which they have found most effectual is that of nitrate of silver, in the large proportion of from one to two parts in four parts of distilled water. This solution may be applied behind the epiglottis by a small roll of paper bent at its moistened end. A more effectual mode is with a small round piece of sponge, fixed to a long rod of whalebone, bent at an inch from the sponge to an angle of eighty degrees. The patient's mouth being opened wide, and the tongue pressed down with a spoon, the sponge is passed to the top of the pharynx. As soon as it reaches the fauces, a movement of deglutition takes place, which carries the larynx upwards, at which moment the sponge is brought forward, and squeezed under the epiglottis, and the solution

freely enters the larynx. Convulsive cough, and sometimes vomiting, ensue; but the application causes no pain."

But the great merit of its revival is mainly due to Dr. Horace Green, of the United States, who published the first work that has been wholly devoted to this subject, and it is only doing justice to Dr. Green to acknowledge the great value of his labours in this new field of inquiry. But so little attention and consideration had the treatment received from the medical world, that in some of the reviews of Dr. Green's works in this country, the critics seem to have been wholly unaware of the labours of Sir Charles Bell, and awarded to Dr. Green the merit of its introduction, instead of giving it to their own countryman.

It is now thirty-four years ago since this method of treating diseases of the windpipe was first enunciated by the master mind of Sir Charles Bell; but that great man was too much occupied with other pursuits to work out the discovery in the manner it deserved. I call it a discovery, because it was previously, and by most practitioners is still, believed to be utterly impossible to pass any foreign body into the larynx and trachea without producing vio-

lent spasm, or even suffocation. Such opinions have often reached me, coming from men occupying the highest walks in their profession, who ought to be imbued with a sufficient degree of liberality to prevent the condemnation of a practice, or, indeed the denial of its practicability, for no better reason than that they do not understand it themselves.

It is certainly a great stain on the medical character of that day, that a means of removing disease, so useful as this, should have either escaped the attention of the whole medical world, or else have been regarded as a method of treatment that was useless, if not impracticable.

JOHN HASTINGS, M.D.

*Albemarle Street,
August, 1850.*

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DISEASES OF THE AIR PASSAGES,

ETC. ETC. ETC.

CHAPTER I.

S Y M P T O M S .

THE free expansion of the windpipe is so essential to life, that whenever contraction of that organ takes place suddenly, the symptoms are sufficiently striking to prevent any mistake as to the situation of the obstruction. But when this abnormal alteration occurs in a more gradual manner, the symptoms are less obvious, and an accurate knowledge of them becomes more important, in proportion as their obscurity increases. We cannot contend against disease with a fair chance of success unless we comprehend its nature, extent, and situation; and to know these well is, indeed, to know the leading features of pathology. There are conditions peculiar to every disease which our imperfect means of observation are unable to disclose; but if we can recognise sufficient of them to enable us to

eliminate the disorder from the system, we gain the main object of our pursuit.

I shall now proceed to describe the history of the following diseases of the air passages:—

ACUTE LARYNGITIS.

CHRONIC LARYNGITIS.

CHRONIC LARYNGITIS, ACCOMPANIED BY HEMOR-
RHAGE.

CHRONIC LARYNGITIS, OCCASIONING ASTHMA.

FOLLICULAR LARYNGITIS.

TUBERCULAR LARYNGITIS.

SYPHILITIC LARYNGITIS.

HAY FEVER.

ACUTE LARYNGITIS.

In the early stage of this disease, the patient feels a sensation of heat and fulness about the throat, which in a short time becomes sore; or the tonsils may have been inflamed for some days previous to the attack. On inspecting the throat, the fauces and pharynx usually present a red and swollen appearance. But one of the earliest and most constant symptoms of the disease is a difficulty of swallowing. This is succeeded by difficulty of breathing, great restlessness, and anxiety. Respiration is accompanied by a considerable amount of wheezing, and the cough has a hoarse, barking, suffocative character. The voice is also hoarse, or reduced to a whisper.

When the disease progresses to a fatal termination, which it will do rapidly, unless timely relief be afforded, respiration becomes more and more difficult, in consequence of the inflamed mucous membrane giving rise to effusion beneath its surface, thus further diminishing the calibre of the windpipe, and preventing the ingress of a sufficient

quantity of air to purify the blood in the lungs. The countenance from being flushed, becomes livid ; the pulse, that was hard and full, becomes quick and feeble ; the restlessness passes into a drowsy state, or the patient becomes delirious, and sinks from suffocation. More or less tenderness is felt in the laryngeal region, which is increased on pressure. If the inflammation has extended through the larynx generally, a hissing sibilant rhonchus will mark the respiratory sound. If only one side is affected, which is rarely the case in acute laryngitis, the respiratory murmur will be heard blended with the rhonchus.

Edema of the glottis is not always a consequence of acute laryngeal inflammation. In those cases where obstruction takes place in the veins of the larynx through mechanical causes, tumefaction of the loose tissue of the lips of the glottis and adjacent parts follows. Aneurism of the thoracic aorta, enlarged cervical glands, and tumours of the neck, which impede the venous circulation in the laryngeal region, may give rise to this affection.

CHRONIC LARYNGITIS.

Is met with at all periods of life, from infancy to old age, varying between the mildest form of inflammation and the severest subacute variety. It may occupy only a small circumscribed spot, or involve the entire windpipe. The disease often appears as a remnant of an ordinary cold in the head. After the inflammation has expended itself in the mucous membrane of the eyes, nose, fauces, and throat, it frequently in early life entirely disappears; but at a later period extends into the larynx, and permanently establishes itself, thickening the mucous membrane, and thereby impeding respiration. When it reaches the Eustachean tubes it ends in deafness. Sometimes it extends into the frontal sinus, and then occasions great pain over the eyebrows, known as brow ague, giving rise besides to a sense of heat and tightness on the upper part of the nose. It is often prolonged into the nasal passages, which it not unfrequently blocks up, and destroys the sense of smell. In this wretched condition many years are sometimes passed without obtaining any relief.

The disease is not often attended by much fever or constitutional derangement; nevertheless, upon close inquiry, one or other of the functions will, in most cases, be found more or less disturbed. The cough is tickling and troublesome; the amount of expectoration varies considerably. When the inflammation affects the fauces, tonsils, and lingual surface of the epiglottis, it renders deglutition both painful and spasmodic. When it locates itself in the trachea, it sometimes gives rise to a distressing cough, and all the ordinary symptoms of phthisis, and is then a most puzzling case to the practitioner. I must confess that I had been repeatedly puzzled with these cases of chronic tracheal inflammation, attended by cough and expectoration, in which no hoarseness was present, before I was in the habit of stethoscoping the windpipe. Although the thorax may give no clue to the disease, the latter will readily be detected in exploring the trachea, by a sibilant rhonchus being heard in that organ. In some of the severer inflammatory affections of the laryngo-tracheal tube, unattended by pulmonary disorder, a wheezing sound is heard at a short distance from the patient, which may lead to an erroneous diagnosis of the case. The physical examination is usually confined to the thorax, where rhonchi are heard, which have been transmitted from the windpipe, and this circumstance is likely to lead to the opinion that the case is one of bronchitis, whereas an examination of the

trachea would at once decide the nature of the disease.

Another form of this affection, and one often involved in obscurity, is that accompanied by hemorrhage, and which is so commonly mistaken for hemoptysis. Indeed, for the want of suitable treatment, it not unfrequently terminates in phthisis, owing to the irritation the blood occasions when it penetrates the lung, instead of being brought up by coughing. In some cases the attack comes on without a single premonitory symptom. In others, a sensation is felt of blood trickling from the throat to a defined spot in the chest, or exactly the reverse; and one or other locality is pointed out as the part from whence the blood escaped. In other instances soreness is felt in the larynx, which is increased on pressure, and a sensation is felt as if a hair or feather was irritating the windpipe. The cough is of a harsh, clearing description. The expectoration varies considerably in amount and character, being frothy, sero-albuminous at one time, and at another muco-purulent, and mixed with a little red blood. The voice is either quite hoarse, or only becomes so towards the evening, or in damp relaxing weather; pain is often felt below the collar bones. We must be careful not to regard the latter symptom as indicating the existence of pleurisy, for it is merely a reflex pain arising from irritation of the

inferior and superior laryngeal nerves in the glottis and its neighbourhood. Sometimes the patient awakes in the middle of the night coughing, with his mouth full of blood; or a teaspoonful or more, is brought up after a violent fit of coughing. Again, in other cases it may be occasioned by any physical effort of more than ordinary amount, and, from some one of these various causes, it often continues for years.

I have at present a man under my care who has occasionally consulted me for the last eight years in consequence of hemorrhage, which is excited by coughing. For three years before seeking my advice he suffered repeatedly from the same complaint. Although I have frequently examined his chest I was never able to detect any pulmonary disease. I saw him about three years ago in consequence of a return of the spitting of blood. On that occasion I examined the windpipe, and from a harsh, respiratory murmur which existed in the air tube, denoting considerable congestion of the mucous membrane, I was induced to believe that the blood flowed from that source, and for the first time sponged his throat with a solution of the nitrate of silver (half a drachm to the ounce). The discharge of blood persisted more or less for the next two days, and, as the harsh respiratory murmur had not perceptibly dimi-

nished in the larynx and trachea, I applied a solution of double the strength of the former one. The hemorrhage from this time ceased as well as the harsh breath sound. He was not troubled again with the disorder for twelve months, when the strong solution was had recourse to, and in a short time checked the flow of blood. He continued well until the present time, which is now about two years since his former attack. The hemorrhage has again disappeared, and the harsh respiratory murmur of the windpipe is almost restored to its normal condition by a repetition of the same treatment. In these cases the discharge of blood generally relieves the cough and hoarseness.

In cases of a severer kind, where the mucous membrane has become ulcerated, it not unfrequently happens that the respiration and circulation become accelerated. And if a portion of the blood has escaped from the larynx into the lungs, where it gets firmly impacted in the pulmonary tissue by the propulsion of the air at each inspiration, a slight deficiency of expansion, as well as a little dulness of percussion, will be perceptible, and a subcrepitant rhonchus may, on examination, be heard over its seat. Under these circumstances, besides a severe cough, attended by a muco-purulent expectoration, occasionally streaked with blood, night perspiration will be severe, followed by con-

siderable emaciation. The respiratory murmur of the larynx in these cases, besides being mixed with a sibilant rhonchus, has a remarkable metallic tone, which is occasioned, I believe, by the ulcerated surface.

Chronic laryngitis not unfrequently gives rise to asthma, through the unceasing irritation it occasions to the superior and inferior laryngeal nerves, and thence to the par vagum. But it is probable that in all such cases there exists some peculiarity of the nervous system which is at present unknown; otherwise asthma would have been a much more frequent disease than it is.

It appears that when once the disease has established itself in the constitution, it requires but a very slight exciting cause to bring it forth. The wheezing rhonchus, which is often heard several yards from the patient, does not arise, as is generally supposed, from air bubbling through mucus in the bronchial tubes, but has its origin in the trachea and larynx, which a stethoscopic examination of those parts will prove. Bronchitis is often complicated with laryngitis, especially when the latter has been of long standing, and overlooked.

The symptoms are considered as arising from, and belonging entirely to, the bronchitis, which becomes a most intractable disease as long as the laryngitis exists. If this latter be removed,

however, the bronchitis will speedily disappear, unless it has been in existence sufficiently long to occasion an irreparable disorganisation of the mucous membrane, or given rise to a dilatation of the bronchial tubes. No difficulty will be found in coming to a decision when one or other of these diseases are present, or when both exist at the same time, if the following observations are attended to:—

If the larynx and trachea are tender or sore to the touch, it may be generally concluded that they are inflamed. In hysterical females such a morbid sensibility of the nerves of the skin exist as to give rise sometimes to much tenderness when the throat is touched. If the stethoscope elicits a coarse, harsh, or metallic respiratory murmur—if a squeaking, hissing rhonchus is heard, resembling that made by puppies shortly after birth, or that occasioned by throwing water upon the expiring embers of a fire, and passing into a sibilant rhonchus—or if a sonorous rale is heard over any part of these organs, we may safely conclude that inflammation is present.

If, on examining the thorax, sonorous and sibilant rhonchi are heard over its superior region, increasing in intensity towards the larynx, becoming fainter as we proceed to the inferior region, and no abnormal sound is heard over any other part of the chest, the thoracic sounds originate in the windpipe, and consequently are not

occasioned by bronchitis. But if these rhonchi are heard over any particular part of the chest louder than elsewhere, and the sound gradually becomes fainter as we proceed to the trachea, they indicate bronchitis, whether the larynx or trachea are free from disease or not.

In many long standing cases of this affection, when the mucous membrane has become thickened, the supply of air to the lungs falls short of the normal quantity; and although the period of respiration may be occasionally prolonged by an effort of the will in inspiration, this cannot be persisted in for any long continuance. Consequently, in such cases, some of the air cells will not be filled at all, whilst others will only be partially distended, and these, like other parts of the body from want of use, will undergo a certain amount of waste and decay. Although the disease in the laryngo-tracheal tube may be removed, we possess no means of restoring the wasted tissue of the lung. In such cases a deficiency of expansion may generally be observed in the upper regions of the chest, as well as a deficiency of the respiratory murmur.

FOLLICULAR LARYNGITIS.

Dr. Horace Green, of New York, entertains the opinion that this affection generally originates in chronic inflammation of the tonsils and neighbouring parts; that an irritating secretion trickles down these diseased surfaces into the glottis, and inflames the mucous crypts into which it penetrates. I can quite understand that inflammation may creep from one spot to another, and from one follicle to another, and in that way pass from the tonsils to the larynx and trachea; but I am at a loss to comprehend how a secretion from the tonsils can drain into the glottis, taking into consideration the nature and situation of these organs.

When any considerable amount of secretion issues from the inflamed tonsils, it is expelled from the back of the mouth by a clearing effort, and the same thing happens when it is discharged in smaller quantities. Should it, however, reach the glottis, which it can only do

in minute portions, I question whether the ciliary action of the mucous membrane would not be sufficient to overpower its downward progress.

We know that considerable quantities of secretion are brought from the glottis with but little effort, and a quantity of secretion is sometimes seen adhering to the mucous membrane of the pharynx, which is probably proceeding towards the outlet of the nose, in obedience to that peculiar function of the mucous membrane.

This disease frequently arises from common cold. Inflammation, more or less acute, depending much on the constitution of the patient, attacks the tonsils, uvula, fauces, and roof of the mouth; and after reaching the pharynx, spreads from the back of the tongue to the epiglottis. The tonsils and uvula are red and swollen, and inflamed mucous follicles are generally seen at the base of the latter, elevated from its surface, whilst the uvula itself is often elongated so as to reach the back of the tongue and lingual surface of the epiglottis, and consequently occasions an irritating cough, and a frequent desire to swallow:—

“I cannot leave,” says Dr. Stokes, “this part of the subject without alluding to the effect produced by relaxation and elongation of the uvula in producing symptoms of laryngeal inflammation. This fact has been long known,

and I shall here merely enumerate the various forms of symptoms which I have known to be relieved by the simple operation of removing the lower and non-muscular portion of this process.

“1st. Cough coming on at night on the patient lying down. It is incessant, and accompanied by wheezing, dyspnœa, and restlessness. Nearly complete absence of symptoms during the day.

“2nd. Cough of a laryngeal character, with a feeling of stuffing and tickling of the throat; alteration of voice, and hawking up of mucus.

“3rd. Symptoms very analogous to humid asthma, with a loud sonorous rale over the chest.

“4th. Symptoms of the dry catarrh in old persons, without laryngeal cough, stridor, or alteration of the voice.

“5th. Symptoms of chronic laryngitis, hoarseness, some stridor, hard cough.

“6th. The preceding symptoms, combined with hectic and purulent expectoration, so as to resemble true phthisis laryngea.

“7th. All the usual constitutional symptoms of phthisis, such as cough, puriform and bloody expectoration, hectic, emaciation, quick pulse, yet without the physical signs of pulmonary tubercle.”*

* A Treatise on the Diagnosis and Treatment of Diseases of the Chest. By William Stokes, M.D. Page 259—260.

Sometimes the epiglottis will be seen in a highly vascular state, and thickened with inflamed and projecting follicles on its border.

These appearances give a very irregular aspect to the lining membrane of the throat, and the inexperienced practitioner sometimes falls into the error that ulceration is present before it really exists. The inflammation, after continuing in the throat for some time, creeps into the glottis, or it proceeds there at once, and lingers long after the complaint in the throat has disappeared. In other cases it will be in vain to search for disease in the throat. When it commences in the larynx and trachea, a sensation of heat and fulness is felt in these parts; sometimes soreness is added, which, however, may generally be produced by pressure with the fingers or stethoscope. The cough is usually of a scraping clearing description; sometimes there is a sensation as if a hair, feather, or seed was lodged in the tube.

In other instances a tickling or itching is felt, and the cough has a remarkably hoarse guttural sound, and the voice at the same time is hoarse or husky. In some cases there is a remarkable deficiency of secretion, when, at length, after long coughing, and great exertion, a little pearly tenaceous mucus is brought up along with the frothy secretion of the mouth and fauces. This affords considerable relief, but in

a short time the obstruction to free respiration reappears, and the distressing cough returns which is generally most troublesome in the morning after rising, or after any active physical exertion. In other cases the expectoration is free, and in considerable quantities.

At the commencement of the disease, however trifling the inflammation may be, the space within the tube is diminished by the enlargement of the follicles, although they may, at a later period of the disease, augment its size, by occasioning disorganisation and decay of the surrounding tissues. Hence follows more or less difficulty of breathing, according to the amount of obstruction, and the irritation which the inflamed crypts have given rise to. At first it is only perceived on great physical exertion; but, as the complaint is increased by cold and other causes, the respiration becomes more impeded. When the disease reaches the vocal cords they lose their tension and natural power of vibrating, and hoarseness follows; this, however, often depends on disease elsewhere.

I have now under my care a patient who frequently suffers from hoarseness. He is never relieved unless the back of the velum is sponged with a solution of the nitrate of silver; when applied to the vocal cords it is not attended by the slightest benefit; and, in another case in which I was lately consulted, a little girl, thir-

teen years old, who had for several years been unable to give utterance to a word but in a whisper, could sing with the greatest facility, and possessed an excellent soprano voice. So that there can be no doubt but that all the neighbouring soft parts are concerned in vocalisation.

When ulceration has made considerable inroads into the vocal cords and the ventricles of the larynx, the voice is generally reduced to a whisper, and it is seldom completely restored; although ulceration often disappears under appropriate treatment, but rarely without some deterioration to the parts in which it has been situated, enough at least to affect the vocal intonation. The hoarseness is extremely variable before it becomes permanent. It will often appear upon a humid state of the atmosphere, in the evening, or after talking or singing, or when the wind is in the north-east or north. In those cases where permanent hoarseness exists without cough or expectoration, it is unattended by any evil consequences to the patient; but when it is so accompanied it generally ends in phthisis.

When the disease commences in the larynx, which it not unfrequently does in clergymen, it appears to be of such an insidious nature, that it has often been found to have made considerable inroads into the mucous membrane of the larynx and trachea, before any relief has been

sought for by the patient. Such cases continue throughout their course to be marked by the same loitering progress, and, when ulceration has manifested itself, and the expectoration, which is generally scanty, has been streaked with blood, it is rarely discharged in such large quantities, as often appear in other forms of this disease.

This, again, is owing to the sluggish nature of the complaint. For long before the blood-vessels are destroyed by the progress of the ulceration, they are rendered impervious by the compression they undergo, from the exudation of albumino-fibrous matter which has been infiltrated in the tissues surrounding the ulceration, or their mouths may become so plugged up by the effused matters, or by coagulated blood, as to permit only the escape of the small quantity found in the expectoration which is brought up. These cases in their advanced stage, when attended with night perspiration and emaciation, are not unfrequently mistaken for phthisis, and by those who, from their great experience ought to be capable of a more accurate diagnosis.

Ulceration of the follicles of the mucous membrane of the larynx and trachea is the last stage of this disease, in which it will terminate sooner or later, unless previously arrested by suitable treatment. The symptoms undergo considerable alteration as the disease passes from the inflammatory

into the ulcerative condition. All of them become manifestly augmented, but none more so than the cough, which often occurs in fits of great violence, accompanied by a stridulous sound. The voice at the same time passes from hoarseness to a mere whisper. The patient is frequently observed to press the laryngeal region with his hand before he attempts to speak or swallow, which seems to diminish the pain to a certain extent; and although I have stated that the intonation of the voice may be affected by disease above the larynx—as when inflammation and ulceration affects the tonsils, uvula, and pharyngeal membrane—I believe the voice is only reduced to a whisper, when the ulceration has reached the vocal chords and ventricles of the larynx. The pain and soreness about the os hyoides undergo a marked increase in these cases, and deglutition, and even attempts at utterance, often occasion considerable suffering to the patient.

TUBERCULAR LARYNGITIS,

I venture to affirm, always follows the primary disease of the lungs, although chronic laryngitis, a primary disease, frequently occasions phthisis, which then becomes the secondary disorder. The latter often commences in the pharynx and fauces, the former always in the windpipe. Males are more liable to suffer from it than females. It is not a common affection after the age of forty, and occurs more frequently at that period, when phthisis is at its height, viz., between the ages of eighteen and thirty-six. It is rarely developed before the tuberculous disorder has reached the stage in which cavities are formed in the pulmonary tissue.

Some times, however, it occurs at an earlier epoch of the complaint, but then the evidence the condition of the lung affords, will be sufficient to determine the nature of the laryngeal affection, although it should have shown itself before any muco-purulent expectoration had been discharged from the chest, which I do not think essential to the formation of the

disease. Tubercular laryngitis manifests itself after all the ordinary symptoms of confirmed phthisis have been present for a longer or shorter period, in the following manner:—The patient complains of a little fulness, heat, and tenderness about the region of the larynx, the voice is observed to be a little husky, and the cough rather hoarse and barking, with frequent attempts at clearing away the expectoration. This condition may last without any marked change taking place throughout the remaining course of the pulmonary disease, when, at length, the patient is cut off by the primary disorder.

In other cases, the tenderness, which becomes increased on pressure, is towards the close of the affection, very painful. The voice, from being hoarse, passes into a whisper, and in some cases ends in complete aphonia. The cough is laryngeal, and very distressing from the irritation it occasions to the ulcerated and inflamed larynx and trachea; the respiration is of a stridulous nature; and, finally, when the laryngeal disease takes the lead of the pulmonary, the ulceration spreads to the lingual surface of the epiglottis. All attempts at utterance or deglutition are now attended with great pain, not only in the larynx, but shooting from the fauces and back of the tongue into the ears; and fluids taken into the mouth are rejected by the nose.

HAY FEVER,

Or hay asthma, as it is sometimes called, is an inflammatory disease, although it has been generally considered a nervous affection, and has consequently been treated with anti-spasmodics and remedies of that class. This has arisen more from a consideration of the causes of the disease than from examining into its nature. If inflammation may be said to exist where heat, redness, swelling, and pain are found, it certainly is present in hay fever, where all these signs are assembled; and although the serous exudation may be less rich in fibrine than it is in some of the other forms of inflammation, I have no doubt it exists in this fluid in a notable quantity.

Hay fever resembles asthma in its severest form; in its mildest, ordinary catarrh, or a "cold in the head," consequently there is much variety in the disease; but the different varieties conveniently arrange themselves under two heads—the catarrhal, or common; the asthmatic, or

rare. Although the former is frequently met with without the latter, I have never seen the latter unaccompanied by the former. The catarrhal sets in with slight chills and lassitude, such as often attend an ordinary cold. The mucous membrane of the eyes, mouth, and nose become hot and dry. The irritation gradually increases; the nose appears stuffed at its upper part; at length sneezing ushers in a discharge of aqueous secretion from the nose and eyes, which is of a saline acrid nature, and excoriates the upper lip and cheeks over which it passes; pain and heaviness is now felt in the lower part of the forehead extending over both eyebrows. Although these symptoms strongly resemble those of an ordinary cold, they differ, however, in being more severe, and lasting generally much longer. I have known them in several instances to continue for months, occasionally becoming a little better, but never entirely disappearing. There is generally a little harshness of the voice and soreness of the throat, but the disease is unattended by any feeling of suffocation. This affection is often met with in May and June, but it is frequent at other seasons of the year.

The asthmatic form is not only accompanied by all the symptoms of the catarrhal, but they usually exist in an aggravated form. The fever which in the catarrhal affection was scarcely noticed, is much more severe in this, and which

amounts to shiverings, followed by a hot skin, accelerated pulse, and much thirst. The paroxysms of sneezing are more violent, and of longer duration, the discharge of serous fluid streams from the nose and eyes, the pain in the forehead is severer, and pain of a neuralgic character is felt in the seat of the facial nerve. Pain is also felt in the upper and lower extremities, and the lumbar region. The fauces and tonsils are inflamed and swollen, and there is much heat and dryness in the throat, as well as in the eyes and nose. The appetite is deficient and the bowels sluggish.

The following are the special symptoms of the disease: difficulty of breathing; a sensation of tightness across the upper part of the chest, with more or less pain below the collar bones; cough; a thin frothy semi-transparent expectoration, or it may be thicker, and more opaque, with some degree of hoarseness, which evidently arises from the disease attacking the larynx and trachea. The superior and inferior laryngeal nerves are so much irritated, that they give rise to a certain amount of spasmodic contraction of the laryngo-tracheal tube, occasioning the difficulty of breathing, constriction of the upper part of the thorax, and pain below the collar bones; and the hoarseness is due to the congested state of the vocal cords, which cannot now vibrate in a natural manner.

Congestion of the mucous membrane of the throat and windpipe in the aged, is generally attended by spasmodic cough and the discharge of a ropy, frothy secretion. In such cases the epiglottis is often so irritable, that fits of choking and violent cough occur during meals, from the food irritating the congested membrane, as it passes over it. The cough is often very distressing after a sleep, in consequence of the membrane becoming perhaps more congested than when the patient is awake, and frequently changing his position. "For in sleep," as Dr. Alison observes, "the blood is, perhaps, in fullest quantity, its movement slow, and its congestion in internal parts easiest, because it is least solicited to the organs of sense or locomotion."

Syphylitic laryngitis, when it has occasioned ulceration of the mucous membrane of the larynx, will generally be found to have extended its ravages into the pharynx, fauces, and nasal passages. It is usually attended by cough, muco-purulent and bloody expectoration; the voice becomes hoarse, and deglutition is often performed with pain and difficulty. When any doubt exists as to the nature of the disease, which the appearance of the ulceration, if any is visible, does not clear up, an inquiry into the history of the case will at once dispel all doubt on the subject.

CHAPTER II.

CAUSES.

The causes of these obscure affections of the air passages are proximate, pre-disposing, and exciting; but, in a work of this nature, it will be better to consider them under one head. The two latter frequently do not admit of separation, and the former is generally involved in so much mystery as not to admit of revelation.

No subject connected with medicine is more difficult of demonstration than proximate causes. In the first step of all diseases there is a disturbing cause, which breaks up the relationship subsisting between the elements formed in the body, and which thereby deranges the functions of its different parts. Most, if not all, diseases derive their source from external agents. At one time we are exposed to too high or too low a temperature, or too much or too little nutriment is taken; at another, our clothing is deficient or too abundant, or our minds and bodies are overstrained by too much mental and phy-

sical labour, or they are enervated by a want of due exertion. Again, we are placed under malarious causes, too subtle for our means of investigation to comprehend, making their existence known only by the symptoms they occasion, as exemplified in cholera, small-pox, &c. This field of research will, sooner or later, yield a rich harvest to its cultivators, and if the truths which they develop do not lead to more successful treatment of disease, they will probably tend to check its development.

Climate has been alleged as one of the great causes of these disorders of the windpipe; much more, I believe, has been said for and against climates than they deserve. I have never had any reason to believe that Italy was superior as a residence to England, for persons suffering under these affections of the throat. I have known cases that have been sent there benefited by the change, and known others who seemed to have suffered more than they would have done in some sheltered spot in England. On the other hand, I have seen persons who laboured under severe inflammatory affections of the larynx and trachea in London proceed to Scotland, where they have passed the winter, and been better in the spring than they had been during the previous one in England. Nay, it is a well-known fact the farther we proceed north, the less frequently is phthisis met with, until at last we arrive at certain lati-

tudes where the disease is unknown. In Iceland the disease, unless imported, does not exist ; whilst in that spot most devoted to the consumptive inhabitants of this country who are sent abroad for the arrest of, and recovery from, the disease, its native population are by no means exempt from phthisis.*

The vicissitudes of the atmosphere are amongst the most frequent causes of acute laryngitis—occasioned either by the indirect application of cold to the external parts of the body, or by its being immediately applied to the throat and windpipe, which gives rise to inflammation of the mucous membrane of the part, in the manner Professor Bennett, of Edinburgh, has so graphically described. He observes:—

“ Exudation expresses the act of the liquor sanguinis passing through the vascular walls, and also the fibrinous portion of the liquor sanguinis, when it has coagulated on the surface, or in the substance of any organ or tissue of the body ; it comprehends lesions of nutrition, termed inflammatory, tubercular, and cancerous. The following are early phenomena of exudation, and their result from a previous series of changes which take place in the capillary vessels

* Dr. Burgess states, from personal observation, (in an article on the “Climate of Italy,” published in the *Lancet* of May 18, 1850), “That no greater popular delusion prevails, than the belief in the existence of some undefinable specific virtue in the climate of Italy for the cure of pulmonary consumption.”

and the blood contained in them. They, as seen in the frog's foot by the microscope, occur in the following orders* :—1st. The capillary blood vessels are narrowed, and the blood flows through them with greater rapidity. 2nd. The same vessels become enlarged, the blood flows through them slower, but evenly. 3rd. The flow of blood becomes irregular. 4th. All the motion of the blood ceases, and the vessels appear fully distended. 5th. The liquor sanguinis is exuded through the walls of the vessels, sometimes accompanied by the extravasation of blood capsules, owing to rupture of the capillaries.”†

Atmospheric changes are also a most fertile source of chronic and follicular laryngitis, occasioning a diffuse form of inflammation in the fauces and pharynx, which extends to the larynx and trachea, and eventually terminates in the follicular disorder, the crypts becoming hypertrophied and ulcerated. When the latter affection arises from this cause, it is always preceded by pharyngeal inflammation. In these cases it is surprising what large patches of ulceration admit of recovery. Dr. Stokes states that, “The cure of

* Mr. Paget, however, doubts if the circulation is accelerated in the contracted vessels, or even if they contract at all on the application of stimuli which gives rise to congestion or inflammation. But he asserts that as soon as the vessels dilate, the circulation quickens.—*Med. Gaz.*, June 8, 1850.

† Monthly Journal of Medical Science, Feb. 1850, pages 149, 150.

extensive ulceration of the trachea by cicatrization has been observed by Mr. Porter. The patient recovered under the use of mercury, and after enjoying good health for upwards of a year, died of another disease. On dissection an extensive but perfect cicatrix was found in the upper portion of the trachea.”* Cold is the occasion of the slightest as well as the severest forms of laryngitis; from those cases in which but a little thickening of the mucous membrane or slight hypertrophy of the crypts exist, giving rise to a tickling cough and huskiness of voice, with tenderness about the laryngeal region, to those in which severe inflammation is present, occasioning œdema of the glottis and epiglottis, and rapidly terminating in death.

* Op. Cit. page 246.

SCARLET FEVER.

This disease is always attended with inflammation of the tonsils, and it generally gives rise to more or less laryngitis, which is probably a mere extension of the disease from the fauces to the windpipe. In many fatal cases this is a serious complication, and greatly assists in bringing about the final result. It is well known how useful the application of the nitrate of silver is to the inflamed tonsils and fauces in this affection; deglutition is immediately performed with more ease, and respiration is often relieved. As far as my slight experience goes in the treatment of this disease, it appears equally useful in the inflammation of the mucous membrane of the larynx.

In the summer of 1848 I was requested to meet Mr. Marshall, of Greek-street, Soho, at a case of scarlet fever in Cork-street, Burlington-gardens. The patient, a young man, had been labouring under scarlet fever for some time; his breathing was considerably embarrassed, without any apparent cause. On examining the windpipe,

a hissing sibilant rhonchus disclosed the laryngitis which caused the obstruction to the passage of the air. The respirations reached thirty-eight in a minute. The larynx was sponged with a solution of the nitrate of silver, and before we left the room the respirations fell to twenty-eight in the minute, the patient feeling great comfort and relief in consequence.

Small pox, and more rarely measles, are sometimes causes of severe attacks of laryngitis. Hooping cough is not an unfrequent cause of laryngitis—the cases are generally mild; sometimes, however, the inflammation is of that sthenic type which terminates in croup, as the following case will illustrate:—

Mary Ann Hayes, *ætat.* six years, was placed under my care Feb. 5th, 1848, in consequence of suffering from hooping cough. She had always been a weakly child. At the age of two years, and subsequently at three years and a half, she had suffered severely from croup. On the following day the child was again attacked with croup; the cough was hoarse and stridulous; the breathing was also stridulous and hurried. A sponge saturated in a solution of the nitrate of silver, of the strength of half a drachm of the salt to an ounce of distilled water, was introduced into the larynx and trachea, which, after a slight spasm, was followed by great relief. Although on the following day all the symptoms of

croup had disappeared, the application of the caustic was persevered with daily for four days, at the end of which time it was abandoned. The hooping cough, although much better, was not cured, and on March 10th the mother called upon me in the greatest alarm with her child, who was again seized with croup. The nitrate of silver was again applied to the larynx, with a result similar to that which attended its employment on the previous occasion. Its use was persisted in for a week, and the child finally recovered. So rapidly did stridulous breathing come on in the last attack of this little girl, that it could hardly be occasioned by lymph, there not being sufficient time for its formation. According to the mother's statement the child appeared well at six o'clock in the morning, and was threatened with suffocation at nine. Hence, it was probably occasioned by spasm of the contractile tissue of the part, for when death occurs from this disease, according to the investigations of Dr. Cheyne, the glottis is never so occluded as not to have an open space of three-eighths of an inch, room enough to admit a sufficient quantity of air for carrying on life for a considerable time. Consequently, we must look to some other cause for the final catastrophe. It will be found, no doubt, that as the windpipe is largely endowed with nerves, the latter give rise to an unusual amount of irritation and contraction in the tissues they are embedded

in, when they are subjected to such intense inflammation as ends in œdema of the mucous membrane, and sub-cellular tissue in the adult, and false membranes in the child.

Erysipelas is another cause of acute laryngitis which not unfrequently ends fatally, more from the rapidity with which it traverses the different tissues in its neighbourhood, and the vast extent of surface it sweeps over, than from the nature of the inflammation itself. And there can be no doubt that some of those morbid conditions which involve the constitutional powers, are often attended by complications of the larynx, which are mainly instrumental in bringing the case to a fatal issue.

One of the most frequent causes of chronic laryngitis is breathing an atmosphere loaded with small particles of dense irritating matter. It is of little consequence whether it be metallic, mineral, or animal. If the material be insoluble, or nearly so in the mucous membrane of the respiratory apparatus, it will, sooner or later, if continued for a sufficient length of time, occasion chronic laryngitis, often of an incurable nature, inducing such an amount of disorganisation of the mucous membrane, as very considerably to abridge the period of human existence.

The dry grinders of Sheffield and elsewhere, who spend ten or twelve hours a day for months and years in an atmosphere loaded with small irritating

particles of metal and stone, take in these minute atoms at each inspiration with impunity for some time. At length they increase to such an extent, and so distress and impair the function of the mucous membrane, that chronic inflammation and thickening follow. The irritating matter is too firmly rooted in the tissue to be dislodged by coughing, and if it were, the benefit would be but of short duration, for the supply is kept up so long as the workman is able to continue at his occupation, until at last, although born with a robust constitution, the disease so impairs the functions of the lungs, that a tuberculous diathesis is generated, and he dies in the prime of life, a victim to a most pernicious employment. It is wonderful how individuals can be found willing to fill up the gap which phthisis so continually makes in the ranks of those so occupied, with the prospect of such a fate awaiting them.

But there are materials of a much less irritating nature than those which the dry grinders suffer from, such as chalk and lime, which slowly occasion chronic laryngitis, and at length bring on such a cachectic state of the constitution as eventually ends in consumption.

Some time ago I had a young man under my care, the only child of remarkably healthy parents, with whom he resided. He was temperate, and a well conducted person, and his business was that of a tailor, but as the sedentary occupation

of sewing did not agree with his health, his master, who was a military tailor, gave him the situation of brusher in the establishment, which he filled for about nine years.

It appears that in order to insure the military red coats being sent home free from dust and looking well, the seams are well whitened with chalk; and it was this young man's occupation from morning till night for years together to clean these red coats by brushing away every trace of the chalk. He consequently passed all the day in an atmosphere charged with carbonate of lime. For several years it occasioned only a slight tickling cough; gradually it merged into a frequent desire to clear the throat, occasionally accompanied by a dry irritating cough; at length hoarseness came on. The cough increased, attended by muco-purulent, sometimes bloody, expectoration; nocturnal perspirations and debility manifested themselves, and thus fully established the tubercular diathesis. When he consulted me his utterance was reduced to a whisper, and excavations were diagnosed in both lungs.

I have no doubt similar cases are of not unfrequent occurrence, and might be prevented if proper precautions were taken to prevent the admission of irritating matter of this nature into the lungs. But I believe in most cases, when such patients apply for relief, the disease is too far ad-

vanced to admit of recovery, and, if it is not, they no sooner get a little better than they return to their former employment, in consequence of having no other means of obtaining a livelihood. In most instances such persons are unfortunately amongst the worthiest members of their class, for often, owing to their good conduct, they have occupied their situations longer than under other circumstances they would have done, and thus, apparently, their excellence has led to their destruction.

I have at this moment, June, 1850, a young man under my care of great moral worth, and highly esteemed by his employers, who has held a situation in a cloth factor's establishment at the west end of London for upwards of thirteen years. His occupation is to stand all day over cloth which has been recently sent from the manufacturers, examining and measuring it; he, consequently, is breathing an atmosphere charged with small particles of wool and other kinds of dust the greater part of the time he is engaged in his business. For many years he had a dry troublesome cough, and about eighteen months ago began to expectorate a pearly glutinous secretion, which always relieved him; during the last twelve months it has been muco-purulent, and frequently streaked with blood, which alarmed him very much. Latterly he became thinner, and occasionally suffered from night perspirations.

He consulted me about three months ago; his

voice was hoarse, and he informed me it had repeatedly been so before; the cough was troublesome, and he brought up about a tablespoonful of secretion in twenty-four hours. The examination of the chest did not elicit then, nor has it elicited since, any trace of disease in the pulmonary tissue. The respiratory murmur of the laryngeal region was, however, remarkably harsh, and is so still, but in a diminished degree. This patient was always relieved by cauterising the windpipe; he is, however, not well, and I am apprehensive that the nature of his employment has laid such a foundation for mischief, by probably occasioning disorganisation of the mucous membrane of the larynx, as will eventually bring him to an early grave.

This cause exists even in a milder form than has yet been noticed, as in the case of an atmosphere loaded with the dust of flower and small particles of bran. These, when they are frequently, and for a long period, applied to the air passages, occasion cough, and more or less laryngitis. Seedsmen, corn chandlers, millers, and bakers often suffer from diseases of the respiratory organs from this cause. Irritating matter of this nature gives rise more frequently to an asthmatic diathesis than to a tuberculous one; but it is much more frequently inhaled with impunity than that by which the Sheffield dry grinder is surrounded.

No practitioner who has seen many of the

journeymen bakers in London, can have failed to observe how frequently they suffer from asthma after they have reached the age of forty years, whilst seedsmen and corn chandlers, according to my observation, when they suffer from disease of the mucous membrane of the larynx and trachea, are more frequently the victims of phthisis than asthma.

Impure air and irritating gases are among the occasional causes of diseases of the larynx and trachea; the former operating as a predisposing, and the latter as an exciting cause, for the development of these affections, and occasioning so much irritation in the glottis and the parts adjacent as to give rise to inflammation.

Odours and pungent irritants, such as emanate from ipecacuanha and other substances, as well as the poisonous matter proceeding from new hay, the nature and essence of which are unknown to us, give rise to that irritation and congestion, if it does not actually amount to inflammation in the larynx, which terminates in asthma and hay fever.

Influenza is another very common source of these disorders. This disease, it is well known, involves the mucous membranes of almost every part of the body, and when it disappears, as it sometimes does very gradually, it is usually found lingering in the laryngeal region, whence it is dislodged with great difficulty, more particularly if the influenza has been characterised by much seve-

rity, so as to have occasioned great debility, in which case the enfeebled powers of the body are unable to throw off the disorder in the windpipe.

Undue exertion of the voice often occasions disease of the laryngo-tracheal tube; taxing the organs of speech beyond their natural powers is so commonly done by the clergy, and gives rise to that affection well known to most persons under the name of the "clerical throat." Although it is met with in the robust, it is generally found amongst the weakly, and those possessing a strumous or lax constitution. Such persons are often observed to have black hair, dark eyes, and a ruddy complexion. Their voices are often deficient in that volume necessary to fill satisfactorily the church or chapel they preach in; consequently they are led to make great efforts to accomplish this object, which they do sooner or later at the expense of their health.

The larynx, like every other organ, may be overworked—it is just as liable to fatigue as any other part of the body; and yet it is often treated as if it were a mere piece of inanimate machinery that could labour unceasingly for an indefinite period. This disease generally develops itself between the ages of twenty-five and forty; it is a rare circumstance to meet with it after the latter period, although I have known it develop itself as late as the sixty-eighth year, the patient never having suffered from the affection previously. It generally

commences after a long and fatiguing duty, by a little weakness of the voice, felt rather than heard, and there may be a little tenderness perceived about the vocal cords. By and bye the feebleness of the voice occurs before the conclusion of the sermon; at length it becomes uncertain in its tones, and husky, or it is so weak before the duty is half performed, that the service is concluded with great effort. The patient now begins to feel a decided soreness in the larynx and trachea, with a sensation as if a hair or some foreign body was in the windpipe; nervousness and low spirits are now added to the other symptoms. At an early epoch of the disease the voice often recovers its natural tone during the week's rest, but being over-wrought on the following Sabbath, it at last terminates in more or less cough and expectoration, accompanied by hoarseness, so that the patient is either compelled to abandon his clerical duty altogether, or it is performed with great pain and difficulty. Although the duties of the clergy are irregular, inasmuch as the chief exercise of the voice takes place but once a week; yet the time occupied in reading the prayers and in delivering the sermon is so fixed and so regularly performed, that where any feebleness exists in the vocal organs, congestion and inflammation of the larynx are soon established; whilst barristers and other persons who are necessitated to speak aloud, and in public, have the

power of postponing or limiting their speeches, which enables them to escape disorders of this nature. Sometimes the disease arises from debility in those who possessed an originally strong constitution.

The miserable income which some of our hard working clergy are obliged to subsist upon is painful to contemplate. One who has been educated and trained in the habits of a gentleman, has perhaps no more than a hundred a year to keep himself, a wife, and several children, and, moreover, to give to the poor! How is such a man to be strong either in mind or body?—the battle of life with him is incessant. His spiritual reflections must often be interfered with by dwelling upon his worldly difficulties. And when the duty comes to be performed in the parish church, it is not wonderful that his voice fails as it does, more for the want of proper support than from any natural defect in his organisation. Some time ago I had a reverend gentleman under my care who had suffered for two years from this disease of the throat; he rapidly improved under the treatment of cauterising the laryngeal mucous membrane, but soon returned to me as bad as ever. I was led to inquire into the cause of the relapse, and satisfied myself that the nourishment he partook of was inadequate to preserve that tone to the vessels of the throat which the treatment had given, or, indeed, to sustain the body in tolerable health.

I have had reason to know that his circumstances have since undergone a favourable alteration, and his throat affection also.

Debility from moral causes is a fertile source of these affections; whatever wastes the energies and powers of the constitution beyond the repair of a natural supply of food and rest, must sooner or later give rise to debility; and usually annexed to this physical wasting is a state of mental turmoil—such as is known to exist among the people of every country which has reached a high state of civilisation. This applies more particularly to the inhabitants of metropolitan cities and large towns than to the rural population. To the town districts the men of intellect gather from every part of the country, where fierce struggles for pre-eminence and success in life are continually going on; here the talented, the ambitious, and the aspiring repair, hoping to find a suitable reward for their toil. But, alas! how many are doomed to disappointment, giving way to the deepest despair, which occasions a premature decay of the constitution.

Among the various diseases which flow from this cause are disorders of the larynx and trachea. Men surrounded by such circumstances become a prey to their morbid feelings, which gradually undermine their health, and from neglected colds, which take firm root in the windpipe, and from utter inability to encounter the

farther inroads of disease, phthisis develops itself, and completes what moral distress began. This cause seems to elucidate the curious fact that, although in rural districts phthisis is more frequent in women, in towns it is more common to men.

Although males are generally more liable to these diseases than the other sex, there is, however, a certain class of females of peculiar conformation who are particularly susceptible to affections of this nature, very difficult of cure. They are remarkable for possessing long necks, and are consequently, no doubt, more liable to these disorders. This may arise from the greater extent of membrane the inflammation has to spread over, and hence, probably, a greater liability of its becoming permanent. The exposure of the neck in females generally may have an influence in keeping up congestion of the laryngeal mucous membrane, sufficiently to give a tendency to an acute attack from very slight causes, as well as to retain it there when it has been developed. Such cases not unfrequently terminate in asthma.

I am persuaded that smoking, and drinking intoxicating fluids to excess, are both predisposing and exciting causes to this class of diseases. These habits are usually connected with late hours and other irregularities, which occasion a great liability to taking cold, and consequently giving rise to these disorders. Both smoking and drinking, but

particularly the former, not only tend to occasion congestion, but to establish it when it has taken place in the fauces, pharynx, and larynx.

Inflammatory diseases of the mucous membrane of the larynx and trachea are common to all ages. After the age of forty they are less frequently met with, but they are more troublesome to cure, from the difficulty which is sometimes experienced, not in restoring the membrane to its natural condition, so much as in sustaining it in that state. The ordinary vicissitudes of temperature, which we are all more or less exposed to, as well as the habit the membrane seems to have contracted, in consequence of the length of time it had been accustomed to the disease, predisposing to a relapse.

During infancy bronchitis is a very common disease, and the croup is often met with at the same period, but neither one nor the other is unattended with more or less laryngitis; and, even at that epoch, when man may be almost said to be immortal, between the ages of twelve and fourteen, when death so rarely takes place, coughs are not uncommon, and depend entirely on slight affections of the larynx, which hardly require treatment of any kind, beyond suitable diet, and a little careful domestic attention.

Few persons suffer more from laryngeal disease than public singers, but the attacks are generally of a transient nature. They who occupy the

highest walks in the profession require to be in the most perfect health to realise those exquisite sounds, such as are heard at our Italian theatres and elsewhere. Although these diseases are very common among the vocalists, they rarely exist long enough to occasion any serious mischief to the vocal organs; for no sooner is a little hoarseness perceptible, sufficient to give rise to a defect in the voice, than medical aid is at once sought. They are also very liable to contract these diseases of the windpipe from the exposed manner they are often compelled to dress in the theatres.

Those affections, such as roughness and hoarseness of the voice, occasioned by slight inflammation of the glottis and adjacent parts, are speedily relieved by sponging the passage with a solution of the nitrate of silver of the ordinary strength; but when it arises from tonsillar or uvular inflammation, it is more troublesome to remove; and it is somewhat remarkable, that in two instances among the pupils of the Royal Academy of Music who had consulted me in consequence of suffering from chronic laryngitis, one, after several applications of the caustic, was able to master a note that previously she could not reach; while the other patient gained two additional notes after the same treatment.

CHAPTER III.

DIAGNOSIS.

The diagnosis of disease is one of the most important points connected with the history of medicine.

Without an exact knowledge of their nature our remedies will be applied at random, and the results prove very often unsatisfactory both to the patient and the medical attendant. In the diseases immediately under consideration an accurate diagnosis is indispensably necessary, and fortunately it can be made here with much less difficulty than in the more obscure affections of the abdominal viscera, or of the nervous system.

Here, as in diseases of the chest, we have *special* as well as general symptoms to guide us. The former, like those of the chest, are characterised by peculiar sounds produced in the windpipe, and unless we make ourselves acquainted with them, it will be impossible to understand the nature, situation, and extent of those affections. In order to do this well, notwithstanding all that has been said to

the contrary,* the laryngeal region must be carefully stethoscoped. It is surprising that scarcely an author of any repute, except Stokes, Barth, and Roger, have done more than glance at this very interesting and necessary study.

When an examination of this region is to be made, the patient should be requested to turn the head from side to side for the larynx, and backwards for the trachea. If the tube is healthy, the larynx will yield a soft cavernous murmur during respiration, which is a little more vigorous in inspiration than expiration, whilst in the trachea the sound has a diminished cavernous note, but is more rapid. Between these two acts there is a distinct interval.

The volume and rapidity of sound depends chiefly on the calibre of the tube. It is always large in vocalists—indeed, it is no more than might be expected, or how could so much sound be produced unless the trachea were sufficiently capacious to allow a large volume of air to impinge on the vocal cords at will? A very distinguished teacher of singing in the metropolis assured me that this faculty was acquired by the cultivation of the voice. I am willing to admit it may be

* “Auscultation of the trachea has been insisted on by some writers; but I confess it has afforded me no assistance, for whenever that part is diseased the symptoms are but too evident.”—Lectures by Dr. Cotton on Physical Diagnosis in Phthisis, *Med. Gazette*, page 848, May 18, 1849.

augmented by such means, but on the other hand I do not recollect an instance of any public singer that I have questioned on the subject who had not exhibited considerable vocal powers before any systematic training of the voice began; and I have repeatedly observed to persons, in consequence of the magnitude of the laryngo-tracheal tube, that they had a powerful voice, and the reply has generally been in the affirmative.

Whatever causes a diminution in the size of the laryngo-tracheal tube occasions the respiratory murmur of that organ to become harsh and rapid. When it is the seat of inflammation, a grating, hissing rhonchus denotes the stage preceding exudation, the latter is recognised by a rhonchus of a sibilant, wheezing character, and gives the idea of sound arising from an irregular surface, which is not unlike that occasioned by pouring water on the expiring embers of a fire. This sound is often heard with almost equal intensity throughout the organ. At other times it is met within the larynx, or it may be confined to the trachea, or reach partly into both. Again, it will be heard in circumscribed patches, over which soreness is often complained of from the pressure of the stethoscope, however lightly it may be applied. The latter often accompanies the follicular laryngitis of Dr. Horace Green, and when this is situated about an inch or an inch and a half below the larynx, usually produces a narrowing of the trachea.

In severe cases a whistling rhonchus, blended with a hissing one, is heard over the stricture or narrowed portion of the tube, approximating sometimes to that heard in the larynx during a paroxysm of whooping cough or spasm of the glottis.

When the calibre of the inflamed organ is naturally small, or diminished in size by long standing disease, causing thickening of the mucous membrane, the laryngeal sonorous rhonchus becomes developed. I have often observed a metallic murmur over the region of the larynx, generally more pronounced over one side than the other, and often coinciding with the seat and extent of ulceration in that region. It is so constant, that when the general symptoms have tended to diagnose this state of the organ, the metallic murmur is never wanting to confirm it. There is a rhonchus now and then met with in the larynx of a trembling character, always associated with hoarseness, and which denotes a very engorged state of the vocal cords. I once met with that rhonchus which Stokes* observes is "analogous to the sound produced by the rapid play of a small valve, mingled with that of a bass cord. This rale does not always exist; but when it does it bears a distinct character. It is most conspicuous immediately above the processes of the thyroid car-

* On the Diagnosis and Treatment of Diseases of the Chest, by Dr. Stokes. Page 250. Dublin. 1837.

tilage, and disappears in proportion as we examine nearer the bronchiæ; it is sometimes perceived only on one side of the larynx, as if it corresponded to a circumscribed ulceration."

In my case there were neither the general nor special symptoms of ulceration. The sound had its greatest intensity over the right side of the larynx. I suspected it was occasioned by a portion of tenaceous mucus, adhering to the edge of one of the vocal cords, which was partially detached from the mucous membrane, and whirled backwards and forwards by the passage of the inspired and expired air. No trace of the sound, however, was to be heard two days afterwards. I have never examined the laryngeal cavernous rhonchus, at least that form of it which is termed the "death rattle," when, either from a want of strength to bring up the secretion, or through a blunted state of the senses generally, its obstruction is not perceived; consequently it accumulates in the tube, and the air bubbling through it gives rise to the rale.

It is alleged* that in cases of hæmoptysis originating in the larynx, a cavernous rhonchus is heard in that organ without any being perceptible in the chest, thus enabling the auscultator to diagnose its source. Should farther experience establish this fact, it will be an important step

* *Traité Pratique D'Auscultation.* Par M. Barth et M. Roger. Page 231. Paris, 1841.

in the right direction ; for, although a large number of cases of hæmoptysis may have their origin in the trachea, there are no positive means of demonstrating it. For even where a moist rhonchus is detected in the chest, it is quite possible, and I believe it is not an unfrequent occurrence, that a portion of the blood which has passed through the larynx or trachea has trickled into the lungs, and thereby given rise to an erroneous view of the case.

I have repeatedly met with such cases, in which I felt myself justified in coming to this conclusion. Where the blood finds its way into the lungs in large quantities from the windpipe, it may become a source of disease in itself by disturbing respiration, or it may degenerate into some material poisonous to the system—hence its removal should be effected as speedily as possible. The diagnosis will be facilitated by inquiring if any laryngeal disease existed previously to the appearance of the blood, such as hoarseness, and also if that was relieved by the discharge of the blood. If such has been the case, and no previous symptoms of disease had been known to exist in the lungs, it may be presumed that the blood flowed from the windpipe.

Cough, which is both voluntary and involuntary, is ordinarily occasioned by some irritating matter existing in the air tubes, which augments the sensibility of the neighbouring parts, and terminates in an expulsive effort, that is, a fit of coughing.

That the mucous membrane lining the air passages above the lungs is much more sensitive than that which sheathes the ramifications of the bronchial membrane and air cells few will deny. But I believe that cough has its origin entirely within those air passages which are situated above the spongy tissue of the lungs, a doctrine at variance with that laid down by many eminent authorities on thoracic disease.

If my opinion is capable of proof, it will be of some practical value should it only call more frequent attention to the laryngeal region in diseases of the respiratory organs. Every hospital physician will probably admit that he has occasionally met with pneumonia in cases that have died of other diseases, without his suspecting its presence ; and also that he has accidentally found pneumonia in patients who have been admitted into the hospital for other complaints, who had neither cough or expectoration to indicate its existence. In such cases there is always a certain amount of bronchitis.

Here, then, we have the nervous system of the lung subjected to the highest degree of excitement, through inflammation of the bronchial tubes and structure of the lung itself, and yet no cough or expectoration exists. The numerous cases in which these symptoms are present do not invalidate my position, that cough has its origin only in the air tubes above the lungs, as I shall pre-

sently show. In order for diseases of the lungs to be attended by cough, the exudation, or, as it is more commonly termed, secretion, must have found its way into the trachea, whose sensibility is so exquisite that the slightest amount of secretion within its cavity excites a cough for the purpose of removing the accumulation which obstructs the free passage of air.

It is not only in pneumonia and bronchitis that there is an absence of cough; for it is not uncommon in partial or scanty deposits of tubercle to find it wanting, as well as in tumours and aneurism, situated in the neighbourhood of the lungs. Even in chronic pleurisy it is not a constant attendant; but let the air passages be irritated or obstructed, and a cough is immediately excited to remove the impediment.

According to the observations of Rainy, which are generally admitted to be correct, the air cells are not endowed with ciliated epithelium; hence we must look to some other cause for the removal of the exudation in pneumonia than ciliary action. Probably it may take place under the following circumstances: as the inflammation subsides, the enlarged capillaries diminish in volume, the compressed air cells at the same time return to their natural size, the exuded matter being no longer confined in a tight fitting sac, readily slips out of the air cells by the compression and contraction which the lungs undergo in expiration.

It is then driven into the minute bronchi and comes under the influence of the ciliated epithelium of the mucous membrane, and gradually it makes its way towards the outlet of the pulmonary organs. Not only is this beautiful machinery employed for the removal of superfluous matter formed within the lungs, but also that which is conveyed to them from without. At every inspiration, more or less dust and solid matter of some kind or other is drawn into the lungs, which in the course of time would so coat the air passages as to effectually prevent those changes taking place between the atmospheric air and the blood, which are essential to the existence of man.

The secretion which this solid matter occasions protects the mucous membrane from injury, and the untiring ciliated epithelium gradually effects its removal, and so preserves the air cells and bronchi from being over loaded with the matter floating in the atmosphere. Such is the ordinary way in which the mucous membrane of the lungs relieves itself; but cases not unfrequently occur where so much irritating matter finds its way into the lungs, and this for so long a period, that the healthy action of the mucous membrane is at last broken down, and its place is occupied by chronic inflammation and even destructive ulceration.

This gradually reduces the powers of the constitution, by disturbing the functions of other organs, and hence it abridges life, or terminates, as it not

unfrequently does, in phthisis. We see it often exemplified in the dry grinder, and in other patients whose occupations keep them in an atmosphere loaded with small hard irritating particles, which are constantly floating in it.

We have already shown that exudation may exist in the cells and tubes of the lungs, without occasioning that kind of irritation which induces cough; but when this is deposited in the trachea a sudden, contractile, and expulsive effort ensues during expiration, beginning at the trachea, and extending upwards to the larynx, pharynx, and mouth, quite distinct from the ciliary action, and in this way the matter is expelled from time to time. That the expiratory effort is largely concerned both in the act of coughing and in the expulsion of the secretion there can be no doubt; but there is another important point connected with this act, and it is this: I have repeatedly observed, when passing a small sponge into the trachea, the patient having had an irresistible desire to expire at the same time that the mucous membrane of the trachea has applied itself closely to the sponge, occasioning at the same moment an expulsive effort which kept pace with the withdrawal of the sponge.

If the same phenomena occur during a paroxysm of cough—the compressed air acting behind the secretion closely embraced by the mucous membrane, as we see exemplified in the

ball discharged from the musket—it is easy to understand how plum stones, shot, and other solid bodies may be coughed up from the trachea. The contractile power of the respiratory apparatus is in proportion to the violence of the cough, and Dr. Williams* has demonstrated that all the tubular parts of the lung undergo contraction from mechanical, chemical, and electrical stimuli, and dilate upon its removal. M. Valentin has arrived at similar conclusions through the medium of irritation applied to the par vagum.

In some cases of irritation and inflammation of the larynx and trachea the expulsive efforts are so violent that the stomach rejects its contents; this probably arises from the mechanical pressure it undergoes through the sudden compression of the abdominal muscles, as we often see in whooping-cough. There are other cases, however, not remarkable for the violence of the cough, in which vomiting ensues; here it would seem to be owing to reflex action arising from irritation of the superior or inferior laryngeal nerves.

Acute laryngitis is to the adult what croup is to the infant. It is highly important that no error arises as to the nature of the disease, that an accurate diagnosis be made at once; for unless the inflammation of this narrow passage be speedily

* The Pathology and Diagnosis of Diseases of the Chest.
By C. J. B. Williams, M.D. Page 320. 1840.

arrested, the ingress and egress of air to and from the lungs will soon be so impeded, that death may quickly follow. The disease with which acute laryngitis is most likely to be confounded is tonsillitis; but from this even it may be easily distinguished. At the same time it must be remembered that the former is sometimes an extension of the latter. On looking into the mouth of a patient suffering from acute laryngitis, the tonsils, fauces, and pharynx are red, and somewhat swollen.

In tonsillitis, if we are able to inspect the back part of the mouth (which frequently is impossible in consequence of the inflammation and swelling extending to the back of the tongue and neighbouring parts), we perceive the tonsils enormously enlarged and turgid, almost blocking up the arch of the fauces.

In both diseases there is a difficulty of swallowing; but in laryngitis it is felt in the pharynx; in tonsillitis at the back of the mouth. In both there is a difficulty of breathing; but it is much more distressing in the former than in the latter. In laryngitis the patient often coughs in order to remove the obstruction which impedes respiration. In tonsillitis he frequently performs the act of deglutition to remove the obstruction. In the former the cough has a hoarse, barking, throttling, stridulous sound; in the latter it is peculiar, and easily recognised by the experienced ear.

In laryngitis the pain is felt over the laryngeal region; in tonsillitis at the angles of the jaws. In the former the voice is hoarse, or reduced to a whisper; in the latter it is tonsillitic. The physical signs even further strengthen the diagnosis. Over the part where the inflammation is most severe in acute laryngitis a slightly dull sound is sometimes evident on percussion, which may be performed by placing the forefinger of the left hand over the thyroid cartilage, and striking with the forefinger of the right. On applying the stethoscope over the same spot, a shrill whistling or wheezing rhonchus will be observed to have superseded the full soft respiratory murmur of health, whilst in tonsillitis the ordinary respiratory murmur is heard on exploring the larynx. There is a pseudo-laryngitis met with in hysterical females, which resembles this disease in some of its symptoms in a remarkable degree.

Dr. Watson mentions such a case in his Lectures.* “I remember,” he says, “being asked by Sir Charles Bell, some years ago, to see a young woman in the Middlesex Hospital under his care. She had recently arrived, and was breathing with the stridulous noise peculiar to inflammation of the larynx. She had twice before, in the country, had tracheotomy performed for similar attacks;

* Lectures on the Practice of Physic. By Thomas Watson, M.D. Page 689. 1848,

and there were the scars of the operation on her neck ; but both Sir Charles and myself were satisfied, upon considering all the circumstances of the case, that the difficult inspirations were spasmodic and hysterical, and she recovered under the remedies that do good in hysteria."

The operators in this case could not possibly have committed so gross a blunder had they been acquainted with auscultation of the larynx, which would at once have put an end to all doubts as to the nature of the case.

Chronic laryngitis is a very common disease. It is generally associated with chronic bronchitis, and frequently exists after the disappearance of acute diseases of the lungs, particularly in those who have reached or passed the meridian of life. In younger individuals, where the energies of life possess a greater buoyancy, diseases are thrown off with less difficulty, and the various organs and tissues of the body recover their former elasticity and tone ; but as we advance in years, an inertia and stubbornness manifest themselves against returning health and vigour, frequently requiring the greatest skill for their removal, which, in many cases, however, cannot be accomplished.

The wheezing which often attends this disease, and which is commonly attributed to the bronchial tubes, is often heard at the distance of several yards from the patient, whilst those sounds which are produced in the lungs are never heard half a

yard from where they are produced. This error has arisen through the neglect of stethoscoping the larynx and trachea. I cannot too strongly urge the necessity of exploring this region with the stethoscope.

Barth and Roger* recommend in all cases of laryngeal disease that the chest should be examined. I say in all diseases of the chest examine the larynx and trachea ; many mysteries will, in consequence, be cleared up, much information gained, and difficulties overcome. For, although bronchitis rarely exists without laryngitis, the latter is often present in the absence of the former ; hence its diagnosis is of high importance, and this cannot be accomplished without a stethoscopic examination of the larynx and trachea.

In consequence of this neglect I have frequently seen blunders committed by men of acknowledged ability, who mistook the disease for bronchitis from the rales heard in the chest, which, if they had tracked to their source, would have been discovered in the trachea, or larynx, or both, thus rendering the disfiguring of the necks of females by cupping, &c., unnecessary.

I have several times had the sister of a distinguished vocalist under my care, in consequence of an affection of her throat, in whom laryngeal rales

* *Traité Pratique D'Auscultation.* Par M. Barth et M. Henry Roger. Page 235. Paris, 1841.

are conveyed into the bronchial tubes, and who has during the last two or three years brought up a little blood when the cough was very severe. Before she consulted me she had the advantage of being attended by a distinguished chest physician, who diagnosed phthisis, and consequently occasioned considerable alarm and distress unnecessarily both to herself and her family. Amongst other treatment her medical adviser had her cupped over the upper part of the thorax, and has consequently given the poor girl a lasting proof of his sagacity. The disease she laboured under was chronic inflammation of the mucous membrane of the larynx and trachea, brought on by over-taxing her vocal organs, and which speedily yielded to the application of a solution of the nitrate of silver to the diseased membrane, and she is now in the enjoyment of excellent health.

It is not only in bronchitis and phthisis that those errors occur. There is another disease—namely, asthma, in which a still more lamentable blunder is committed, not on account of the fatal nature of the disorder, but from its frequency, and which, in reality, is often the result of chronic laryngitis. The exceptions to this general statement are tumours, aneurisms, or abscesses, which, by the pressure they exert on the par vagum or some of its branches, such as the recurrent, give rise to the disorder; or it may sometimes be due to structural derangement of the nerve itself, and

possibly, in some rare cases, to enlargement of the bronchial glands.

The windpipe is not commonly regarded as the original seat of the disease, consequently the latter is generally permitted to advance insidiously under the belief that it is a mere bronchial affection, until it at last declares itself through one of its paroxysms to be asthma. The morbid changes discovered in the lungs, and accompanying the advanced stages of the disease, such as destruction and wasting of the air cells with dilatation of the bronchial tubes, are conditions which the healing art has no means of repairing.

In many instances the disease does not manifest all the symptoms of asthma; it is then denominated an asthmatic affection, or the patient is told he is threatened with, or that his complaint will end in, that disorder. In other cases it begins with a fit of the disease at once,—the patient having made no previous complaint of any ailment. Persons who have laboured under this disease for several years are generally more or less emaciated. The shoulders are high, eyes prominent, nostrils large, speech quick, respiration hurried, being rarely able to get through a short sentence without an interruption to the act of breathing. The appetite is usually good, whilst indigestion is a common attendant upon the disorder, the stomach and colon being often greatly distended with flatulence.

The origin of the disease is generally attributed to a common cold, or to an attack of bronchitis, or influenza, which leaves a cough behind, that never quite disappears; although for several years it may have been much better during summer, but become worse in the autumn, still more troublesome during winter, and at last the following summer fails to bring much relief. Asthmatic patients are often free from difficulty of breathing and cough during the day, whilst sitting, but on moving quickly, or on ascending a staircase, the difficulty it occasions to the respiration is very great. But it is after the first three or four hours' sleep that the great paroxysm of the disease is experienced.

The patient is usually awake with a sense of tightness and oppression about the chest, which at last ends in a feeling of suffocation, that induces him to sit up with his elbows on his knees, his hands being placed on each side of his face supporting his head. Or the impending suffocation is so great that he throws up the nearest window and gasps for breath. A wheezing noise may now be heard some distance from him, cough follows, and at last expectoration; the pulse is quick and feeble; the palpitation is often excessive as well as the perspiration. After this state of things has continued for an hour or two, and a pint or more of frothy secretion is brought up, he drops off to sleep in an exhausted state, or dozes from time to time until he rises in the morning. These nocturnal

paroxysms frequently appear to arise from very slight causes, such as odours, and certain situations, that we have no means of knowing how they differ from other situations which do not excite a paroxysm of the disease.

On examining the chests of such patients, the two sides are often found to expand equally but not freely. Percussion elicits a tolerably clear sound from the thoracic walls. On applying the ear or the stethoscope below the clavicles, sibilant and sonorous rattles are heard. These diminish as we proceed in the examination towards the abdomen, but increase as we pass upwards towards the neck, and over the trachea or larynx their greatest intensity is evident, which region is, moreover, the real seat of the disease. The sounds heard in the chest are transmitted from this part, and this fact admits of ready demonstration.

If a sponge soaked in a solution of the nitrate of silver be passed over the diseased surface, and the chest be examined immediately afterwards, the sibilant and sonorous rattles will have partially or entirely disappeared, and those of the laryngeal region become so much diminished that they cannot be propagated into the tubes within the lungs. Yet how repeatedly have I seen such patients with their chests cupped, leeches, and blistered !

Mr. —, ætat. twenty-eight years, a large, well formed powerful man, consulted me in the summer of 1848. He stated that he had considerably

wasted during the last twelve months, and had suffered for several years from bronchitis and asthma. The attacks of the latter were exceedingly capricious; as, for instance, he never passed a night at Derby without awaking almost suffocated at three o'clock in the morning, and, after passing two or three hours in the most distressing condition, he was enabled to doze a little until eight or nine o'clock. He was a vocalist of considerable repute, but had a defect in his voice, which was a sad drawback to his success. This was a sudden hoarseness, which would come on whilst he was singing, sometimes it amounted to an almost annihilation of his singing voice. The Italian physicians he had applied to failed to relieve him, and he had been equally unsuccessful at home. On examining his chest it expanded and sounded well. Sonorous and sibilant rales were heard in both lungs, but in the right they were most intense. In the larynx and trachea a considerable amount of wheezing was present, and I made out the case to be chronic laryngitis and bronchitis of the right lung.

I at once commenced sponging the larynx and trachea with a solution of the nitrate of silver, at the same time prescribing tonics internally, and although all the rales disappeared in a short time, it was several months before the defect in the voice was thoroughly overcome. In the course of the following spring the patient made a professional

tour through the provinces, and amongst other places, he visited Derby, the scene of his former suffering; but although he slept there several nights under great apprehension, his old enemy, the asthma, did not assail him. It is now eighteen months since the treatment was discontinued, his voice remains perfect, and the asthma has not returned.

When this disease has lingered for months and years in the laryngo-tracheal tube, and as a stimulus is given occasionally by cold, or other exciting causes, to the already engorged capillaries, fibro-albuminous exudations, sometimes mixed with blood, are effused either beneath, or into the mucous membrane, and thus occasion a permanent thickening, and consequent diminution, in the size of this important tube, so that at each inspiration and expiration an amount of air too small for the purposes of the body enters and escapes from the lungs; and in such cases, instead of the soft respiratory murmur of the laryngeal region, an acute and rapid sound is heard.

In some patients the obstruction in the larynx is not great enough to occasion vibrations that extend into the neighbouring bronchi—these are generally milder cases, or they may not have been examined until the more acute attack has disappeared.

The following is a case of this description:—I was consulted in the winter of 1849 by a tradesman residing in an airy part of the west end of London

for an asthmatic affection he had been troubled with for twenty years. The patient was rarely free from the disease in the summer, but always suffered greatly in the winter. He was fifty-eight years old, of a tolerably robust appearance, high shouldered, and eyes prominent. He was a temperate man; his general health was good, except that he suffered from indigestion. On exploring the chest expansion was found to be equal on both sides, and no abnormal sound was discovered either by auscultation or percussion. The tracheal murmur was harsh, and on both sides of the thyroid cartilage a wheezing sound was heard. His nights were wretched; he was obliged to sleep in a sitting posture, and if he dropped off to sleep for two or three hours, the paroxysms of difficulty of breathing and cough were most distressing, which ended in the expulsion of large quantities of frothy secretion. He then dozed away for an hour or two, being now and then disturbed with fits of coughing of more or less violence.

No relief being experienced after several applications of the solution of the nitrate of silver, I was induced to employ a saturated solution of the bichloruret of mercury in distilled water. Under the use of this, and of light tonics combined with nitric acid, he rapidly improved, and although more than twelve months have elapsed since the treatment was discontinued, yet he has had no return of his asthma.

This affection sometimes remains stationary for years. It generally, however, increases by time; and at last the mucous membrane becomes so susceptible to changes of temperature, that a very slight variation is enough to bring on an acute attack. As the disease now resembles asthma more than it did in its milder form, the mischief is consequently allowed to progress with more certainty, and the passage in the laryngo-tracheal tube to become narrower. The patient rarely escapes a night without more or less difficulty of breathing, which comes on after he has rested in the same position for several hours. Sensation being blunted during sleep, congestion takes place in the weak and already relaxed capillaries of the laryngeal mucous membrane, partly from the patient remaining long in the same position, and partly from the gradually accumulating secretion, until at length the continual irritation of both, disturb the patient, who is quickly roused from sleep by a sense of suffocation, and by a violent and sometimes spasmodic cough.

Relief is obtained in the course of an hour or two by the discharge of the secretion, by the disengorgement of the enlarged capillaries, and also by a change of posture. A free current of air now reaches the lungs, the patient dozes or gets an hour or two of sleep, but does not lie long enough in the same position to suffer in the manner just described.

When the disease has been of long standing and the patient considerably advanced in years, it is generally accompanied with chronic bronchitis of the posterior and inferior part of the lungs. The inflammation of the windpipe, however, often creeps into the bronchial tubes of the superior part of the lungs, where bronchial inflammation so often arises from tubercle. These cases are often extremely difficult to diagnose, for when the bronchitis has been of long standing it is often associated with some dilatation of the bronchi, and with more or less of consolidation of the lung. This gives rise to depressions ; occasionally, slight dulness will not be wanting. Then there is the difficulty of breathing, cough, and expectoration, not unfrequently mixed with blood, emaciation, and weakness.

We must not, however, overlook the fact, that the disease began in the larynx where phthisis often ends—that its duration had been much longer than that of phthisis, and also the paroxysmal character the disease assumed after the first sleep, added to which, there is the age of the patient, and the non-existence of cavities, and night-sweats.

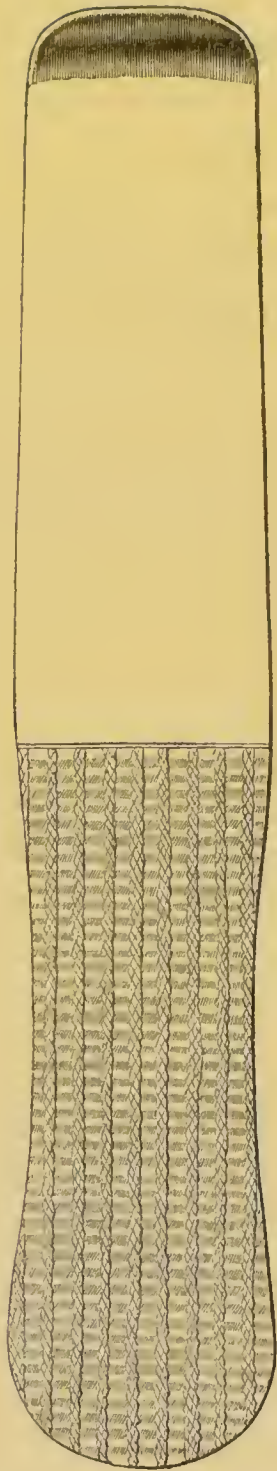
Follicular laryngitis was first described, I believe, by Dr. Horace Green, of New York. It consists in inflammation and ulceration of the mucous follicles of the pharynx, larynx, and trachea. This disease appears to be much more common in America than in this country. Here, it is more frequently ob-

served amongst the clergy than any other class of persons.

It is often difficult to distinguish it from ordinary chronic laryngitis. The mucous crypts at the back of the pharynx are frequently observed to be swollen and inflamed, standing out in bold relief from the paler ground of the membrane below ; the tonsils are often enlarged, inflamed, and ragged, and the uvula elongated and swollen, with the follicles at its base considerably increased in size. When the epiglottis can be seen, its edges are sometimes studded with ulcerated spots, covered with a pale exudation. The inflammation spreads from one follicle to another until it reaches the larynx, when it occasions hoarseness, and creeps onwards into the trachea, and gives rise to a stric-tured state of that organ.

I had lately a military officer under my care who had suffered from this disease about twenty years. He was tall and thin, with a long neck. His voice was weak, but not hoarse. He complained of weakness and languor. He slept through the night generally, but was troubled with cough in the morning, and suffered from indigestion. The crypts in the pharynx were remarkably turgid, as well as the mucous membrane in which they were imbedded. The tonsils were ragged and inflamed, from which oozed a small quantity of creamy looking secretion.

The laryngeal respiratory murmur was feeble, whilst the tracheal was harsh and deficient in volume. On attempting to pass a sponge through the trachea, it was stopped about an inch below the orifice by a narrowing of the tube. This difficulty was subsequently overcome by using a smaller sponge, and eventually the passage was restored to its normal size, and the patient in every way greatly benefitted.



CHAPTER IV.

T R E A T M E N T.

Until the last few years perhaps, the diseases of no other part of the body have been so little understood, or their treatment so defective, as those occupying the windpipe. A most important point, however, has lately been gained by the discovery of the fact, that foreign bodies may be passed into the larynx and trachea without difficulty or danger, and that diseases may be treated there with almost as much certainty and satisfaction as they are when situated on the exposed surfaces of the body.

As the main object of this volume is to place before the professional reader the results of local treatment, applied internally to some of the more obscure diseases of the larynx and trachea, it may be as well to say a few words on the introduction of these substances into that tube. The caustics I have found most useful are the nitrate of silver and the bicyanuret of mercury. The instruments necessary for applying these agents to the windpipe are, a spatula to command the tongue, and a

curved whalebone, with a small sponge attached to the bent extremity. After trying a variety of spatulas I have found the one figured on page 74, best adapted for the purpose. It not only firmly compresses the tongue, but brings it forward, or carries it from side to side, according to the will of the physician. The curve of the whalebone will necessarily differ in some cases; but the form sketched on the page referred to will be found applicable to the majority of cases. Some persons are much more irritable about the larynx than others; but if care be taken in the introduction of the sponge it may generally be accomplished without inducing a spasm of the glottis or epiglottis.

Rare exceptions will be met with in which the irritability of this organ is so great, that even a solution of the nitrate of silver of no greater strength than five grains to the ounce of distilled water, will induce the most violent spasm, such as even to threaten suffocation. I have at this moment such a case in a medical man who has had a chronic inflammation of this passage for the last twenty years. Every time the sponge is passed beyond the larynx a violent spasm follows its withdrawal; but so serviceable does he find the treatment that he is always anxious to have it repeated. Latterly I have thought it prudent not to venture beyond the aperture of the glottis, trusting to the solution finding its way into the trachea, owing to the compression of the sponge in the

larynx. Although this plan has been less beneficial to the patient, it has had the negative good of demonstrating that the introduction of the foreign substance has been unattended by spasm.

The patient should be directed to perform the act of inspiration whilst the sponge is passing down the tube, and also during the period of its withdrawal; for if he struggles to effect its removal or seizes the hand of the operator, the sense of touch will be destroyed; consequently, the kind of surface the sponge passed over, or how far it proceeded into the passage, cannot be known.

In its passage into the tube, the sponge should be carried backwards over the tongue and epiglottis, then downwards and forwards, with a firm, equal, and tolerably quick motion. It ought to be withdrawn in the same steady manner until it reaches the inferior vocal cords, when it should be turned round for the purpose of sponging out the ventricles of the larynx; and by this movement the inferior surface of the epiglottis comes in contact with the sponge. In all cases where much obstruction is met with in the passage, no great effort should be made to overcome it; but upon the next application of the caustic a smaller sponge ought to be used, which will generally pass through the strictured part.

Some persons find a difficulty in reaching the trachea, where no particular obstruction exists, in consequence of employing too large a sponge; or

a whalebone with a curve so formed that instead of the sponge being directed downward, it is driven into the ventricle of the larynx, and does mischief from the efforts the operator makes, to push it into the trachea. This procedure necessarily occupies but a very short time, no delay taking place during the passage of the sponge up and down the tube.

After all, too much must not be expected from this plan of treatment. Cases will not unfrequently be met with that defy this, as well as all other resources of our art, among which will be found diseases of a cancerous and tuberculous nature, affecting the mucous membrane and the mucous follicles of this region. In some cases where common inflammation has committed such ravages as to loosen and destroy portions of the laryngeal cartilages, giving rise to fistulous openings from abscesses and hidden ulceration, a cure is uneffected, because the mischief cannot be approached; and in the aged, where the disease appears to linger only in the ventricles of the larynx, it is sometimes impossible to effect its removal, when the disorder has been of long standing, and the larynx has become so irritable that caustics of a sufficient strength cannot be employed for its removal without inducing such a spasmodic action of the glottis and epiglottis as to forbid its further use. Undoubtedly the topical application of remedial agents, applied to diseases affecting the laryngo-tracheal tube, is a great improvement on any former sys-

tem of treatment ; but we must endeavour to make ourselves sufficiently acquainted with the action of those remedies, so that we may neither disappoint our patients or ourselves by the occasional failures, which we are sure to meet with.

In the treatment of *acute laryngitis*, the topical application of a solution of the nitrate of silver may sometimes be employed with great advantage ; indeed, unaided, it will not unfrequently remove the disease, but then the patient must be seen sufficiently early. At a later period, when the inflammation has extended into the trachea, and a considerable amount of high action has been developed, it will occasion great irritation, and augment the mischief—a circumstance which has happened to myself, when less experienced in the treatment of this affection, and I have seen it also occur to other practitioners.

If the inflammation has not penetrated into the trachea, but is confined to the larynx, we may safely venture to employ this topical application ; for although a small spot of intense inflammation may be safely and successfully treated in this way, a large surface is irritated by the same means. In order to ascertain and demonstrate that the disease occupies the larynx, and not the trachea, recourse must be had to the stethoscope, which will at once furnish us with the required information. Over the upper part of the thyroid cartilage a whistling

sibilant rhonchus may be distinctly heard, but over the trachea the respiratory murmur will have a healthy sound, although it may be deficient in volume.

The strength of the solution for acute laryngitis should be half a drachm of the salt to an ounce of distilled water, and this will be found sufficiently strong for all ordinary cases. The application should be employed twice a day for the first forty-eight hours, then every day for a week from the commencement of its use, and it may be continued occasionally for a short time should any trace of the disease remain.

This treatment would not interfere or prevent the use of any additional remedies, such as calomel, opium, aperients, &c., if it should be thought advisable to employ them; but slop diet and silence must be rigidly enforced. During the progress of the recovery all kinds of stimulating fluids must be forbidden, otherwise the progress of the cure will be retarded.

But it is in the *chronic form of laryngitis* that this treatment is remarkably useful—a disease extremely common in most countries, but particularly so in this, existing in all seasons, affecting all classes of society, and although it is less common before the age of thirty than afterwards, yet no age is exempt from it, from that of infancy to extreme old age. It exists, more or less, in all cases of bronchitis. At an early age, however, it

disappears along with that disease; but when the patient has reached the age of thirty or forty years, it becomes more fixed, and consequently more troublesome to remove.

Most of those cases of cough which are common throughout the year, but more frequent during winter, yet unaccompanied with the general symptoms constituting inflammatory fever, in which bronchitis, pleurisy, or pneumonia are present, are no other than chronic laryngitis, and which may readily be determined by a careful stethoscopic examination of the windpipe and chest.

Many such cases improve rapidly under local treatment applied to the larynx and trachea, which, if neglected for months, or it may be for years, not unfrequently lead to permanent organic changes. These alterations usually consist of ossific, cartilaginous, and fibrous deposits, in the vocal ligaments and neighbouring parts, and which sometimes terminate in asthma, or more frequently give rise to ulceration of the mucous membrane lining this passage, terminating in phthisis. The disease, in its early and more simple stage, rarely induces much constitutional disturbance, but although the general health may not be very obviously deranged, the functions of the body are not performed in the most healthy manner, more or less indigestion being generally experienced. The disease varies between the subacute and slightly congestive, and between that form affect-

ing the whole membrane of the larynx and trachea, and that occupying only a small spot in the tube. The complaint has been described under a variety of heads, but, generally speaking, it may be regarded as an inflammation of the mucous membrane of the windpipe, or of the glands situated in that organ, which may terminate in resolution, ulceration, hypertrophy, or in deposition of heterologous products.

The sub-acute variety is usually preceded by a common cold, which inflames the whole of the fauces and pharynx, then creeps into the larynx; and although the inflammation of the pharynx and fauces may subside in the course of a few days, that affecting the windpipe is more stubborn, and frequently resists every plan of treatment adopted for its removal, particularly if the patient has reached the meridian of life.

This probably arises from the incessant motion of the organ, whilst the fauces and pharynx are comparatively at rest. For when the invalid abstains from talking, reading aloud, or singing, the larynx, although less exerted, is kept in almost constant motion by the effort of breathing, and we know that one of the main objects in the treatment of inflammation is rest, which this organ can only obtain to a limited extent. In cases of this kind the chief indication to be fulfilled, is to diminish the vascular action as speedily as possible, to calm the system generally, and to place the patient

under all those circumstances likely to prevent a recurrence of the disorder.

The first of these objects will be best accomplished by sponging the larynx and trachea with a solution of the nitrate of silver. When this has been applied to the inflamed conjunctiva, we observe that in a short time the engorged capillaries are enabled to contract so as to be able to expel their superabundant contents, and the pain disappears in proportion as the undue pressure is removed from the nerves of the part, which was the consequence of the distention of the blood vessels.

If such changes are the result of the topical application of the nitrate of silver to the conjunctiva, we may feel confident that the same results will ensue, when it is applied to the inflamed mucous membrane of any other part of the body. Sponging the windpipe in such cases, usually, occasions a little irritation in the passage, and sometimes a spasmodic cough follows the withdrawal of the sponge, which, however, is of very short duration. A copious discharge of watery secretion and albuminous matter, occasionally streaked with blood, and sometimes mixed with it, exhibiting a muco-purulent character, depending entirely on the condition of the mucous membrane, whether it be congested, inflamed, or ulcerated, speedily affords relief. Patients not unfrequently experience immediate comfort from the application of the caustic; the voice and cough becoming at once less harsh and hoarse,

and the soreness felt in the windpipe no longer perceived, whilst they feel they are breathing through a much larger tube, suffering only a little heat and uneasiness from the caustic, which usually disappears in the course of two or three hours. The rhonchus in the larynx having already become less harsh, or having disappeared, a much larger volume of air will be heard passing and repassing during the act of respiration.

To fulfil the second indication little more will be required in many cases than a mild aperient, a slop diet, and rest. Towards the close of the disease, the citrate of iron will be found extremely beneficial in giving tone to the weakened membrane, and to the body generally. In other cases calomel and opium may be necessary, until the physiological action of the mercury is slightly developed; also counter irritants, which may be applied to the upper part of the chest, or the upper part of the shoulders, comprising mustard poultices, croton oil, and tartar emetic ointment.

The third indication will embrace the subjects of air, exercise, diet, and clothing, which it is unnecessary to dwell upon here. The sponging ought to be continued every other day for a week or ten days, then at more distant intervals, but should not be altogether abandoned so long as a trace of the disease remains.

Chronic inflammation of the larynx, attended with cough and expectoration, but unaccompanied

by hoarseness, frequently exists, without its presence being detected for years, the symptoms arising, as it is supposed, from chronic bronchitis. Now and then the disease is relieved by being treated for bronchitis. But chronic inflammation of the trachea, which is never attended by hoarseness, may exist; indeed, there can be no doubt it has often destroyed life without the remotest idea being entertained that such an affection existed. The following case is to the point:—

I was requested during the summer of last year to visit a lady at Witham, in Essex, by the family medical attendant. Miss S. —, ætat. 30, of spare habit and sallow complexion, was born in Essex. Her parents were living, and healthy, as well as all her brothers and sisters. She had been suffering for some years from indigestion, and had had a few months previously an attack of intermittent fever, a disease very common in Essex.

For the last two months she had suffered from cough and expectoration, which now and then became better, but in a little time returned with increased violence; and, latterly, the expectoration was streaked with blood. Her breathing throughout the pulmonary attack had been difficult; but of late it had become very distressing. She had night sweats, and most of the ordinary symptoms of phthisis, under which disease she was considered to be rapidly sinking. I found her in bed, labour-

ing for breath ; her voice was weak ; but neither that nor her cough in the slightest degree hoarse.

The respirations were thirty-eight in the minute, the pulse quick and weak. I examined the anterior part of the chest as well as her weak and exhausted condition would permit. Expansion was defective, but equal on both sides ; percussion yielded a tolerably clear sound, and the respiratory murmur was feeble and deficient. No unusual sound was detected over the larynx ; but about an inch below the first ring of the trachea, a whistling rhonchus was heard, similar to that produced by air passing through a crevice or chink in a door or window.

As the case appeared to be one of chronic inflammation of the mucous membrane of the trachea, and had induced a strictured state of the passage, we determined at once on dilating and sponging the inflamed part with a solution of the nitrate of silver of the strength of half a drachm of the salt to an ounce of distilled water. I had some difficulty in forcing a small sponge through the orifice of the stricture, which was then rapidly withdrawn. A very slight spasm ensued, followed by the expulsion of some muco-purulent and frothy secretion.

The immediate relief was so great, that she gave expression to her feelings in very strong terms, and noticed also that she appeared to breathe through a much larger tube than she was accustomed to,

and was relieved of a considerable amount of pain she had felt below the left clavicle. Before we left the room the respirations had fallen to twenty-six or twenty-eight per minute, and the whistling rhonchus had almost disappeared. She had been taking cod-liver oil for some time without deriving any apparent benefit from its use; we, however, decided on her continuing it, as we thought it probable it might now be serviceable to her.

I slept at my medical friend's house that night, and on my way to the Witham Railway station the following morning called upon the patient, whom I found altogether better, having passed a good night, with less cough and expectoration. I afterwards had the satisfaction of learning that she recovered her health, every symptom of phthisis having disappeared.

Dr. Stokes observes: "But this disease, slight thickening, and vascularity of the mucous membrane, may exist in the trachea without producing the symptoms above mentioned. I have seen many cases of chronic inflammation of the trachea, in which the diagnosis was made under negative grounds, there being no evidence of laryngitis on the one hand, and no symptoms or sign of bronchitis on the other."*

* A Treatise on the Diagnosis and Treatment of Diseases of the Chest. Page 238. Dublin, 1837.

Another form of this affection, which might not inappropriately be called the hemorrhagic, is discovered by the patient complaining of a sensation as if a hair or feather were in the throat; uneasiness, scarcely amounting to soreness, is experienced on swallowing, and heat and tenderness are felt in the larynx, the latter being increased on pressure, with pain below the clavicles. The voice, which is husky in the morning, accompanied by a scraping, clearing cough, becomes towards evening decidedly hoarse, and the cough has a rasping, metallic sound. The expectoration is muco-purulent, or it may be chiefly composed of a sero-albuminous secretion of a frothy nature, occasionally mixed with a little scarlet blood.

Sometimes a tablespoonful of blood, or more, is brought up after a severe fit of coughing; or the patient may awake in the night, and find his mouth full of blood. The hemorrhage generally relieves the cough and breathing, and the voice acquires almost its natural tone. In such cases a certain amount of ulceration exists in the larynx, and the cough, voice, and respiratory murmur, will be found to possess a metallic resonance, co-existing with a sibilant rhonchus, whilst the chest sounds, on the other hand, will be of a healthy character.

There are other cases, however, in which discharges of blood take place from the larynx, but the early symptoms are so slight that they pass unheeded by the patient; and it is only after a

searching examination the discovery is made that he had had more or less cough for some time, and his voice had been occasionally hoarse, or there had been a little oppression at the top of the sternum, which disappeared on the appearance of the blood.

When called in to such a case the larynx and trachea should be carefully examined with the stethoscope—then the chest should be explored. Inquiry should be made whether any soreness or hoarseness existed in the windpipe previous to the attack; also, if there had been any cough or expectoration, and if this were the first attack of hemorrhage from the mouth. It will, moreover, be desirable to learn if emaciation accompanied the complaint, and if the patient's family were free from phthisical taint.

It would be further satisfactory to ascertain if the patient was a temperate person, and if his occupation and residence were healthy. Should disease be found in the larynx or trachea, and none in the lungs, and at the same time had the hemorrhage been preceded by soreness of the windpipe and hoarseness, attended by cough and expectoration, and if it were the first discharge of blood from the mouth—should there have been no emaciation or previous weakness, no family taint of a consumptive character—should the patient have led a temperate life, followed a healthy occupation, and lived in an airy open situation, the case may be pro-

nounced hemorrhage from the windpipe, occasioned by congestion or inflammation of the part.

Indeed, had the chest in the foregoing sketch exhibited slight dulness on percussion over the upper part of one side, say the right, with crepitating or sub-crepitating rhonchi around this spot, I still should have felt myself justified in forming the opinion that the disease was laryngeal.

I am not unmindful how stealthily phthisis creeps on, but before it is probable that hemorrhage can take place in the lungs through the encroachments of tubercle in the pulmonary tissue, a considerable deposit must have taken place, enough certainly to be detected by auscultation and percussion, even if the rational symptoms had failed to assist in pointing out their presence. This opinion is stated with considerable diffidence, for I am aware that it is contrary to the view commonly entertained by the profession; but it is done after much reflection, and no little experience in the management of these cases. I may also add, that it is further confirmed by the result of local treatment applied to the seat of the disease. In cases of this kind a solution of the nitrate of silver of the ordinary strength should be employed every day for a week, and continued occasionally so long as any disease is present in the windpipe. The first application of the caustic will sometimes occasion a further, but slight discharge of blood, which will be an additional proof of the source of the

hemorrhage. It will, however, rarely follow the second. A mixture of sulphuric acid and opium, or one of acetate of lead and opium, may be prescribed. If the disease of the larynx has been one of long standing, and there is reason to believe that blood has escaped into the lungs, calomel and opium may be employed until the gums exhibit signs of mercurial action, and counter-irritants should at the same time be applied to the chest in order to hasten its removal. The patient must not be allowed to talk, rest must be enjoined in cool apartments, and a cold slop diet enforced for a few days, and the citrate of iron may then be prescribed; or, if there has been much loss of flesh, cod liver or olive oil may be given with advantage.

The following case will illustrate the preceding remarks:—

A young married lady, *ætat.* twenty-two years, who had previously been in excellent health, and whose family was free from any consumptive taint, was attacked in the spring of 1848 with hoarseness and cough, which were followed in a few days by hemorrhage to the amount of about two tablespoonfuls. This recurred several times in the course of the two ensuing months, during which period she was harassed with cough and considerable expectoration. Respiration was hurried and difficult; the appetite was impaired; night perspiration profuse, and she had become much thinner. Two eminent physicians in town had been consulted,

both of whom separately arrived at the same opinion — namely, that her case was one of phthisis.

I was consulted in the following July. The patient appeared to have wasted considerably, and was about three months advanced in pregnancy. She was hoarse, and had a troublesome cough. The expectoration was chiefly composed of dense masses, of a greenish-yellow appearance, which at once sunk in water. These were mixed with a little decayed blood. The breathing was difficult on ascending a staircase. The respirations were 24 in the minute, and the pulse 112; the appetite was deficient, and night sweats profuse.

On examining the chest, the expansion of the right side was a little less than that of the left. Below the right clavicle slight dulness was elicited by percussion, and the respiratory murmur over the same space was coarse and bronchial. On exploring the windpipe, a considerable amount of tenderness was felt from pressure over the lower part of the trachea and larynx. The respiratory murmur was obscured by a sibilant rhonchus over the tender part of the trachea, and a similar sound was heard over the larynx. On looking into the mouth, the fauces and pharynx were observed to be unusually turgid, as well as the uvula and tonsils. The disease having commenced in the windpipe, hoarseness was the first apparent deviation from health, and the affection still preserved its chief

seat there. The several attacks of hemorrhage, in conjunction with such slight comparative symptoms of pulmonary mischief, which could hardly have been so unimportant, had these repeated discharges of blood been consequent on tubercular deposits in the lungs, determined the opinion that the case was one of inflammation of the larynx and trachea, and that the deficient expansion, dulness on percussion, and harsh respiratory murmur of the right side of the thorax, were caused by blood which had escaped from the windpipe into the lungs, although the general symptoms all favoured the assumption that phthisis existed.

A solution of the nitrate of silver of the ordinary strength was immediately applied to the larynx and trachea, and afforded instant relief. It was continued daily for a short time—then every other, and, finally, every third day for a month, during which period she took cod liver oil, as she had done for some time before I was called in. At the end of the first week she was considerably better, and at the termination of the fourth no trace of disease could be found, except that the right side of the chest, although improved in the physical signs, was less resonant and expansive than the left.

At this period she left town, and a few weeks afterwards had a slight attack of hemorrhage at Edinburgh, which occasioned her to hasten to London. I found her again suffering from slight hoarseness, and the same physical signs of the

larynx, whilst the trachea was healthy. The solution of the nitrate of silver was again had recourse to, and the same results followed its use. She was now examined by one of the physicians who formerly attended her; he pronounced her well, and attributed her recovery to the oil. From this time until after her accouchement in February following she continued well.

But immediately after this event a most violent spasmodic cough came on, attended by a large amount of frothy secretion. No means that could be suggested gave the slightest relief to the cough; nights were passed without sleep; she wasted rapidly, and her recovery was despaired of by all. I was now requested to see her again. She was extremely emaciated. The respirations amounted to 32 in the minute, and the pulse 130. The cough was so incessant that it was difficult to examine the chest. The larynx and trachea throughout their whole extent emitted a hissing sibilant rhonchus. Her tongue, fauces, and pharynx presented a remarkably engorged appearance, and were of a bluish-black red colour.

She complained of a distressing headache, and of a burning sensation in the palms of the hands and soles of the feet. The former plan of treatment was again resorted to, and afforded her immediate relief. It was repeated in the evening; and without the aid of narcotics, she slept through the night. Her recovery was as rapid as it had been

on both former occasions, although it was a considerable time before she regained her loss of flesh. More than twelve months have passed since she recovered from the last attack, during which period she has enjoyed excellent health.

There can be no doubt that tubercular disease of the lungs is a very common cause of hemorrhage from the pulmonary organs. It often takes place, and sometimes in considerable quantity on the first occasion, as one of the earliest symptoms of that disease; but, I repeat, only on the first occasion. On the second attack of hemorrhage the symptoms are too well marked, to leave much room for doubt as to the real nature of the disease. The first attack may occur before the patient has experienced sufficient uneasiness to induce him to seek medical aid. I am, however, persuaded that its frequency is much overrated. Many of those cases which are alleged to be attacks of hæmoptysis are hemorrhages, arising from an inflamed and congested state of the mucous membrane lining the nasal passages, throat, and windpipe.

Dr. Neligan observes: "Hemorrhage from the back of the pharynx may be mistaken for the hæmoptysis of congestion of the lung, and the throat should, therefore, be carefully examined in every case of spitting blood. A lady, whom for some years back, I have occasionally attended for relaxed sore throat, with follicular enlargement of the pharynx and tonsils, has suffered at three dif-

ferent periods from hemorrhage from the throat. The first attack that I witnessed, occurred about two years since, and was evidently caused by walking for some time against a cold north-east wind. The bleeding lasted for several hours, and on examining the pharynx with a mouth speculum, I could see the blood trickling from the surface, irritating the epiglottis as it flowed downwards; it was brought up by cough, and, being of a florid colour, the case might be easily mistaken for one of hæmoptysis. The hemorrhage was readily checked on this and on a subsequent occasion, when it was apparently produced by a similar cause, by the application of a solution of the nitrate of silver, containing a drachm of the salt to the ounce of distilled water.”* That such cases as the above have been considered hæmoptysis by less observant physicians than Dr. Neligan there can be but little doubt, and much alarm and unnecessary suffering has been the consequence.

In some cases of phthisis the patient is suddenly alarmed by discovering his mouth to be filled with blood, having previously considered himself in excellent health. This is brought up for a few hours, or it may continue at intervals for a few days; at length it subsides. In a short time it is followed by cough and expectoration of a sero-albuminous

* Dublin Quarterly Journal of Medical Science. Observations on Hemorrhage. Page 357. May, 1850.

nature, then muco-purulent, and finally tuberculous, blended with all the secretions it meets in its passage to the mouth. Difficulty of breathing, night sweats, and emaciation follow, and the physical signs at once point out the seat of the mischief in the right or left lung.

But in the disease now under consideration, the blood is discharged from the engorged mucous membrane of the windpipe from time to time, at the interval of months, and in some instances of years, unattended by those unequivocal progressive signs of phthisis which I have just described; and unless some of the blood has penetrated the spongy tissue of the lung, and so disturbed and perverted the healthy action of the surrounding tissues, in constitutions predisposed to phthisis, no serious consequences will ensue. But if this accident has occurred, then the blood itself may give rise to, or degenerate into, tubercle, or the irritation it occasions, as a foreign body in the lungs, may bring about that end.

Mr. —, ætat. thirty-five years, consulted me in the autumn of 1847. He was a temperate liver, and born of healthy parents, who were then living; he was fully occupied in the law as a solicitor. In the course of the preceding six months he had had three attacks of hemorrhage; the second was the most considerable, and could not have amounted to less than half a pint, and between the intervals the expectoration was frequently streaked with blood.

He had been under the care of an eminent physician in town for several months, whose diagnosis was phthisis.

At the time he called upon me, he was preparing to go to Madeira, for the purpose of passing the winter there, as the disease was supposed to be gaining ground from the repeated attacks of hemorrhage. He had lost considerably in flesh, although his present appearance did not indicate any great amount of emaciation. His cough was troublesome, and, whilst with me, he brought up a little scarlet blood, mixed with a frothy secretion. He assured me that, from a peculiar sensation felt in his chest, he could point out the spot whence the blood flowed, nor could I convince him to the contrary, for he immediately touched a particular part of the right mammary region with his finger, where he suffered severe pain. From this spot he could feel the blood, he assured me, ascend to the throat.

On exploring the thorax, expansion appeared to be equal on both sides, but was not completed at the same moment of time. The sound on percussion, if there was any difference, was less clear over the right sub-clavicular region than it was over the left. The respiratory murmur was healthy on both sides, except that over the anterior superior part of the right side a feeble sonorous rhonchus was heard, which became stronger in proportion as the trachea was ap-

proached, and over that tube it was heard in its greatest intensity. A sibilant rhonchus was distinctly audible over the larynx.

The larynx and trachea were at once sponged with a solution of the nitrate of silver, and after a slight spasmodic cough, and the expectoration of a little blood mixed with a sero-albuminous secretion, he experienced considerable relief, breathing, as he said, through a "larger tunnel," with an entire removal of the pain which he felt in the right side of the chest.

On again examining the thorax the sonorous rale on the right side could not be heard, and the rhonchi in the windpipe were considerably diminished. This method of treatment was pursued twice a week for a month, and once a week for some time longer, combined, in the first instance, with dilute sulphuric acid and opium, which were substituted after the first fortnight for the citrate of iron, administered once or twice a day. At the end of two months he had recovered his former flesh and strength, and every trace of the disease had disappeared.

Two years after he had been under my care, being desirous to increase the amount of his life insurance, he was anxious to have my opinion as to the state of his respiratory organs before presenting himself at the office. Consequently, I had the opportunity of examining his chest and throat, which I did in the early part of the pre-

sent year, and found them both in a healthy condition.

ASTHMA.—Another form of chronic laryngitis of frequent occurrence, and which often gives rise to asthma, is sometimes greatly benefitted by local treatment applied to the mucous membrane of the larynx and trachea. In some cases the asthmatic affection entirely disappears, whilst in others but little improvement is effected. Few diseases the physician is called upon to treat are more rebellious than asthma; hence any step towards a better system of treatment for that affection will be a very desirable object.

The premonitory symptoms of asthma are often disregarded or forgotten by the patient, who remembers only those attendant on the paroxysms of the complaint. But if he is closely questioned, it will generally be ascertained that before a fit of the asthma occurred, more or less cough existed, sometimes without expectoration — thus clearly proving the existence of irritation in some part of the larynx or trachea.

The earliest paroxysm of spasmodic asthma generally takes place in bed during the first sleep; the patient is disturbed by a difficulty of breathing and constriction about the upper part of the chest; he immediately sits up, and places himself in the most easy posture for breathing, trying in every way to enlarge the thorax; or he rushes to the

window, which he opens, disregarding all risks from the exposure, being impelled by the most urgent desire to breathe cool air. The little cough he has is unattended by expectoration, but a wheezing sound is heard some distance from him.

From being pale the countenance assumes a bluish tint, and is often bathed in perspiration; the pulse is quickened, but weak, and a considerable quantity of straw-coloured, limpid urine is often passed. Sometimes, however, the attack will occur out of doors without any previous warning. When walking at a tolerably brisk pace up a hill the patient will be suddenly arrested by a sense of oppression and difficulty of breathing, which returns in the same unexpected manner in bed or elsewhere, and thus develops itself into unmistakable asthma.

At other times it is experienced in the first instance when walking against a north-east wind. Indeed, very few asthmatic persons can breathe with comfort when so circumstanced. The physician is rarely consulted in such cases until the disease has existed for a considerable period—the first few paroxysms of the disorder being separated by so great a distance of time, that the patient is in some doubt as to the nature of the affection, and whether it is not about to leave him. This fallacious hope is sooner or later dissipated by a more frequent recurrence of the paroxysms. Cases present themselves

in every degree of advancement, and the treatment which appeared to agree at one stage seems wholly inapplicable to another.

The same situation, diet, and medicine which benefit one case are perfectly useless in the next. A high and bracing situation suits some; a low and relaxing one others. Dry cold weather does this asthmatic sufferer good; a damp atmosphere only, is beneficial to the next. One patient is worse in winter, another in summer; nay, so capricious is the disease, that some persons will escape a paroxysm by sleeping in one part of the town, which they would not have escaped had they slept in another.

Others are relieved by passing a winter in Madeira, the West Indies, or in Italy, which fail the next season they are tried. Indeed, it is neither uncommon nor surprising to find that he who has laboured under asthma for several years should have wandered over a variety of countries, seeking relief; or that he has tried the skill of every physican he has been recommended to consult, exhausted every family recipe and every simple, that chance or his fellow sufferers have thrown in his way. And although he may have gone through a great amount of physical pain and distress, he often survives to an advanced age.

Other cases of asthma are met with more commonly than the foregoing, in which there can be no doubt that cough had preceded the earliest pa-

roxysm of the disease (accompanied by more or less expectoration and occasional hoarseness), and continued for months—often for years—progressively becoming worse ; disappearing, or nearly so, in summer, returning in winter, and at length terminating in an attack of asthma. This disease is sometimes met with in females, who are remarkable for having long necks ; these cases are often found uncomplicated with any disease of the lungs, and are extremely difficult to manage.

In proportion as the neck increases in length, the calibre of the trachea and larynx is often found to diminish, which appears to place these organs in a very unfavourable condition, either for recovery or much relief. The calibre of the windpipe being in this case below the natural standard, any thickening of the mucous membrane of the part farther diminishes its capacity, and thus engenders an additional source of irritation in the passage, which short-necked people are less liable to from the larger calibre of the tube.

These cases, difficult as they are to bring to a successful issue, become even more so when complicated with chronic bronchitis, dilatation of the bronchi, emphysema, and diseases of the heart. For, although the primary affection may admit of relief, or possibly cure, yet when associated with one or more of these complications, so much irritation is kept up by them in the respiratory organs, that the repose which is so essential to re-

lief or recovery is rarely, if ever, attained. Hence, little more than palliation is to be looked for, except when the disease is complicated with chronic bronchitis.

If the inflammatory and congested state of the mucous membrane of the laryngo-tracheal tube admits of removal, the restorative process generally extends to the bronchial membrane, which in a short time recovers its normal condition. Cases in which considerable portions of the lungs are involved in bronchitic inflammation, causing sibilant, sonorous, and moist rhonchi, will, in the course of a few days, yield normal sounds, after the larynx and trachea have been sponged with a solution of the nitrate of silver, even when the chronic bronchitis had existed for many months, and even for years. The lungs now get freely permeated with atmospheric air, every organ, and every part of the body become refreshed and invigorated by the change, and the constitutional powers undergo a marked and salutary improvement.

Various forms of asthma have been described by different authors, but most of them, no doubt, arise from the same cause, which exists in the nerves connected with the pulmonary organs. What the exact nature of this perverted action is, and whether it extends throughout the nervous system of the lungs, or from the nerves of the larynx only, is at present by no means clearly under-

stood. That the disease does not depend on any poison in the blood, is proved by the circumstance that asthma sometimes affects but one lung. Were the blood, a fluid common to every part of the body, its source, the whole pulmonary tissue, would be simultaneously affected. We are consequently necessitated to look to the nervous system as the chief seat of the proximate cause of this spasmodic disease.

It was generally believed that this affection depended on a spasm of the contractile fibres of the air tubes, long before Dr. Williams' valuable and interesting experiments on the lower animals proved that the larynx, trachea, bronchial tubes, and air cells contracted upon the application of electrical, mechanical, and chemical stimuli. A knowledge of the fact that muscular fibre had been traced from the windpipe into the smaller ramifications of the bronchi, led to this discovery.

It would be a highly instructive and interesting fact if the starting point of the disease could be ascertained. Morbid anatomy has thrown but little light on the question. Ferrus* found a considerable ossific deposit imbedded in the centre of the pulmonary plexus of a female, who had laboured under spasmodic asthma; and although this must have subjected the bundle of nerves to consider-

* Dictionnaire de Medicine. Tom. iii., Art. "Asthma," p. 101.

able pressure, we cannot affirm it to have been the cause of the disease; for we know that the same plexus has been squeezed and pressed by tumours, aneurisms, &c., without giving rise to this disorder. Valentin has shown that when the par vagum is irritated, contraction takes place in the respiratory tubes.

This tends to support the doctrine that the disease originates in the roots, or in one or other of the great branches of the eighth pair of nerves, rather than at their terminations. The larynx and trachea, particularly the former, are largely supplied with nerves, and these organs have to endure shocks which never occur in the spongy tissue of the lung. The most trying is the variation of temperature they are exposed to, and our artificial state of society has increased this evil.

The heat of the air in the lungs, whether we are inspiring it at 40 degrees or 60, is almost uniform in healthy persons. Every one must have observed, on suddenly leaving a warm room for the cold atmosphere out of doors, that the sensation of cold is felt only in the windpipe, stronger in the larynx than in the trachea, but not at all in the lungs; so that by the time it reaches the bronchial tubes, it possesses the uniform temperature of pulmonary air. Consequently, it would appear probable that the disease is due to an irritation of those nerves which are situated at the entrance of the respiratory apparatus.

And, as I have shown elsewhere, chronic inflammation and congestion may exist in the larynx for years undetected, unless they are accompanied by hoarseness, which at once points out the presence of the disease. In the few cases of asthma that I have examined during the existence of a paroxysm, I have found that the wheezing originated in the windpipe, and not in the lungs, unless the disease was complicated with bronchitis. On exploring the chest at such times, and in such cases, sonorous and sibilant rhonchi will be heard, diminishing as we proceed from the windpipe ; increasing in the opposite direction. But as soon as the stethoscope is placed over that organ, the intensity of the sounds will at once convince the most sceptical that they originate there ; and that those heard in the chest derived their origin from the same source.

But if additional evidence be wanting to prove that the wheezing emanates from the windpipe, it will be found in the fact that if, during the paroxysm, the larynx and trachea are unctioned with a solution of the nitrate of silver, the wheezing will be partially or wholly suspended, the rhonchi in the chest will either disappear or become greatly diminished, and the sounds in the windpipe will be found proportionably decreased. This fact, besides having an important bearing on the treatment, tends strongly to support the doctrine that the disease originates in this passage.

From the views here promulgated, the chief re-

liance for relief and recovery from the disease must be looked for in the local treatment applied to the outlet of the pulmonary organs. If the treatment is commenced during a paroxysm of the disease, when the whole extent of the laryngeal and tracheal membrane is in a state of engorgement, a solution of the bichloruret of mercury, of the strength of two scruples of the salt to an ounce of distilled water, will be found more beneficial than the solution of the nitrate of silver. This may be employed daily for three or four days, and then the nitrate of silver may be used every other day for a week, and continued twice or thrice a week for several consecutive weeks, every now and then increasing the size of the sponge for the purpose of dilating the passage.

The constitutional treatment will vary according to the complications of the disease; but, as the improvement progresses, much benefit will be derived from the citrate of iron. Cod-liver and olive oil will be found useful in some cases.

The following case will illustrate some of the foregoing observations:—

Miss —, ætat. forty-four, a blonde of middle stature, having a long neck, of spare habit, possessing great intelligence, and born of healthy parents, up to the age of twenty-seven years possessed the most robust health, having scarcely ever suffered from an hour's sickness. About seventeen years ago as she was proceeding to church in the

north of Scotland, which was her home, walking briskly up a hill, she was seized for the first time in her life with a cough ; this continued harassing her for several weeks, and at length, about five o'clock in the day, terminated in a severe fit of difficulty of breathing, which subsided in the course of the evening, leaving her perfectly well.

At this time she could scarcely persuade herself that she laboured under asthma, having previously enjoyed such excellent health, and no disease of the kind having been known to afflict any member of her family. However, after a short interval, the disease appeared again, and the neighbouring medical man who attended the family pronounced it to be asthma. After a time she went to Edinburgh for advice, and, failing to obtain relief there, came on to London, where, being equally unsuccessful, she visited other places, and availed herself of the aid of almost every physician she was recommended to consult.

Change of air and change of climate seemed to have but little influence over the disease. On the whole, she considered herself better in Germany, where she passed some months, but being driven back to England in consequence of the continental revolutions, she became worse, after staying in London a few days, than she had ever been at any former period.

In December last she consulted me. She was

thin, and complained of having had cough for five months continuously, attended with a frothy expectoration. Asthmatic paroxysms now and then distressed her, coming on sometimes in bed towards morning, and sometimes when she was up during the day. Her general health was good in all respects, as she said it had been throughout the seventeen years of suffering. The examination of the chest showed that the expansion was equal on both sides, but on the whole deficient. Percussion elicited a tolerably clear sound. On applying the stethoscope to the anterior and upper part of the chest, faint, sonorous, and sibilant rhonchi were perceived, which diminished as the examination proceeded downwards, and increased as it approached the windpipe; over the lower and upper part of that organ they were heard in their greatest intensity.

A solution of the nitrate of silver was now applied in the usual manner, and although no change was perceptible to the patient, the rhonchi in the lower part of the trachea had disappeared as well as those in the chest. A sibilant rhonchus, however, could still be heard in the larynx. This was repeated every other day for a week, and continued for a month at more distant intervals. The cough and expectoration disappeared after the first few days of treatment, and for the ensuing six weeks she remained remarkably free from every symptom of the disease, bustling and moving about

with more comfort than she had done for a very considerable period.

At the end of this time she had a recurrence of the attack, in a mitigated form, which seemed to arise from cold. The solution of the nitrate of silver was again employed, but as it seemed to be less beneficial than formerly, the solution of the bicyanuret of mercury was had recourse to, containing two scruples of the salt to an ounce of distilled water. Under this plan she gradually improved, and during the last fortnight her cough and expectoration have disappeared.

This lady, although she cannot be considered as having recovered, was much more relieved by the plan of treatment above described than by any other, although the disease had been in existence for seventeen years. She lately left London for Germany, and in a letter addressed to me before leaving she observes: "The first month's progress towards amendment, though in the depth of winter, was everything that the most sanguine wish could have aspired to; a most frightful cough, of many months' standing, with its accompanying load of expectoration, was completely removed; an ability and ease in moving about, and even walking out, lately become impossible; and a lightness of spirits and happiness of feeling long unknown."

FOLLICULAR LARYNGITIS. — A variety of this disease, first described and named by Dr. Horace

Green follicular laryngitis, is a much less common affection in this country than in America. Here, however, it is not unfrequently seen, but it is usually blended with inflammation of the surrounding mucous membrane in such a manner that the diseases appear to be inseparable. Dr. Green observes :* “ Although this affection is primarily a disease of the mucous criptæ of the lining membrane of the air passages, yet, as we have seen in some cases, after having continued for a longer or shorter period, the intervening mucous tissue of the larynx becomes involved in the diseased glandular action.”

As far as my experience has gone the primary affection is inflammation of the mucous membrane, which at length involves the glandular structure. In England cases of inflammation of the mucous membrane of the pharynx, and that covering the neighbouring parts, are commonly met with, whilst the glands are not perceptibly affected.

“ I have already,” says Dr. Hodgkin, “ mentioned a case which shows that the plastic form of effusion sometimes accompanies the inflammation of this part of the membrane, as well as that lining the larynx. On a cylinder of lymph thus produced in the trachea, we may observe the small round impressions of the mucous follicles ; whence we may infer, that whilst the membrane itself has been

* A Treatise on Diseases of the Air Passages. By Dr. H. Green. Page 214. New York, 1846.

in that state of active inflammation necessary to produce plastic lymph, the follicles have been but little, if at all affected.”*

But, on the other hand, cases are by no means common where the mucous crypts are suffering from ordinary inflammation, and the surrounding membrane remains healthy. On examining the mouth of a person suffering from this disease, the tonsils are frequently observed to be inflamed, enlarged, and ragged, and sometimes presenting large fissures in their centre, from which an irritating secretion drains out; in some cases they are soft and porous, and in others they become indurated.

The uvula may be seen swollen and inflamed, with several mucous crypts projecting from its base, considerably elongated, through effusion having taken place into the cellular tissue, which occasions it to rest on the back of the tongue, or to give rise to an irritating cough by tickling the lingual surface of the epiglottis. The inflammation extends over the arch and pillars of the fauces, and also into the pharynx, which is seen to be smaller than usual, from the turgid state of its vessels. The enlarged and inflamed follicles may be observed projecting from its red surface, and the epiglottis, when it can be seen, is thickened and redder than usual.

* Hodgkin's Lectures on the Morbid Anatomy of the Serous and Mucous Membranes. Vol. ii., page 67.

The pharyngeal inflammation, and that around the fauces, is speedily removed by the application of the solution of nitrate of silver to the part; but this treatment has very little influence in those extreme cases in which the tonsils are very much enlarged, and the uvula considerably elongated. It is far better to diminish the size of the tonsils by removing a portion with the knife, and to shorten the uvula in the same manner, than trust to the use of caustics.

I would suggest that a portion of the uvula should always be left, as I have seen a case where its removal did irreparable injury to the voice of a professional singer. In some cases, again, the arch of the fauces, including the tonsils and uvula, are in a normal state, whilst the pharyngeal mucous membrane is in the morbid condition before described, or it has a shining, glazed appearance, with considerable hypertrophy of the follicles, and patches of secretion are seen adhering to its surface. In these cases the nasal passages are generally affected in a similar manner.

Sometimes the follicles are seen clustering together, and covered with a thick white secretion, which resists the remedial effects of the nitrate of silver. In such cases I have had recourse to the saturated solution of iodine in rectified spirit. Two or three applications have generally proved sufficient to restore the membrane to a tolerably healthy appearance. I have also employed the

same treatment to the border of the epiglottis, when the mucous crypts there have put on a similar appearance, and had previously resisted the application of the nitrate of silver.

I have occasionally seen cases where, from long standing inflammation of this nature, the parts beneath the diseased tissue had wasted to such an extent as to increase the size of the cavity of the pharynx considerably. Not only the constrictors of the pharynx had diminished in volume, but the emaciation had extended to the tissues of the arch and pillars of the fauces, as well as to the uvula and tonsils. These cases have been generally met with in persons considerably advanced in years, and in whom all the mucous membranes were in a state of disorganisation and decay, and, consequently, connected with a breaking up of the constitution.

However, from the opportunities I have had of seeing this class of affections, I am satisfied that cases presenting the morbid appearances in the pharynx and arch of the fauces just described, form but a small proportion of those denominated follicular laryngitis.

Although in many cases where a considerable amount of high action exists in the fauces and pharynx, the disease will generally be found to have reached the larynx by an extension of the inflammation in the ordinary manner, and not by the irritating matter oozing out of the inflamed tonsils into that organ, it is by no means a constant

occurrence. Indeed, I have repeatedly met with cases in which the disease was confined to those parts, and the back of the velum, where nothing more was required than to carry the solution of the nitrate of silver behind the uvula into the posterior nares, and over the pharynx and fauces, in order to remove a very troublesome cough; whilst in others, and by far the greater number, the disease exists in the larynx and trachea, the fauces and pharynx at the same time presenting a healthy appearance.

Such cases are, generally, most puzzling to the practitioner. The patient is troubled with cough, the expectoration is muco-purulent, occasionally streaked with blood to a considerable amount; pains are felt in the chest below the clavicles, he wastes a little, or he may not lose flesh. His chest is examined again and again, but no disease can be discovered; his mouth and throat are inspected, without anything being found there to account for the symptoms; at length the disease is regarded as an obscure case of phthisis; he gets treated with sedatives, expectorants, and cod-liver oil, until the ensuing winter, when all his former symptoms return in an aggravated degree, whilst as the warm season comes on, they improve.

Much pain and suffering might be spared in these cases, were a stethoscopic examination of the windpipe resorted to, which in most cases would point out the nature, situation, and extent of the

disease; and the practitioner would have that satisfaction in treating the case, which an imperfect knowledge, or an entire ignorance of it, can never give. No class of persons, perhaps, suffers so much from this affection as clergymen, nor is the uncomplicated form of the disease so frequently met with in any other class of patients. I have repeatedly made the most searching inquiries relative to the first development of the disease. I have frequently examined the mouth, found the uvula closely attached to the arch of the fauces, the tonsils scarcely visible, and the pharynx presenting a most healthy appearance, and have been told that they had never looked otherwise; yet cough and slight hoarseness had existed for years, undergoing treatment only when the laryngeal inflammation had extended by cold into the neighbouring bronchial tubes. These symptoms being relieved, the original affection remained in ambush as before, ready to re-appear on the first exciting cause. The disease appears to arise in those cases from an undue and irregular exertion of the vocal organs, and no matter however skilfully they may be treated, they will rarely recover unless local remedies are applied to the diseased surface. A similar occurrence takes place in some of the chronic affections of the skin, all the constitutional treatment being of no avail unless supported by suitable local treatment.

This doctrine cannot be too strongly impressed on the minds of those who are called upon to treat

such cases ; as the fashion, and, I might add, the folly, of the day is to cry down all such means as unphilosophical, and this is often the case with those very persons who, with slight exceptions, prescribe the same treatment for almost every case of chronic disease they are consulted upon.

The Rev. A—— H——, ætat. twenty-eight, placed himself under my care in the early part of 1849. He was of a consumptive family, of a spare habit, and nervous temperament. About twelve months before seeing me, being previously in good health, he experienced an uncomfortable feeling in his throat, after doing duty ; this slowly and steadily increased, so that his voice became towards the close of the service, not only weak but often hoarse, and at last his utterance was both difficult and painful, and as the time appointed for service returned, he became nervous and agitated from the unsatisfactory manner in which he generally performed it.

The disease was not accompanied by any soreness or uneasiness about the fauces or pharynx, neither was there any cough, except a slight scraping in the morning, which sometimes enabled him to bring up a little adhesive transparent mucus, affording considerable relief. He frequently suffered from severe pain below the right clavicle, where two blisters had been applied without benefit, and where he apprehended some very serious mischief existed of a tuberculous nature,

which would shortly end in confirmed phthisis. He was further strengthened in this view from a vivid recollection of the circumstance that his sister, who had died from consumption, had laboured under a similar pain in the same region.

I inspected the throat very closely. Every part seemed healthy; the chest was explored, and the painful spot below the right clavicle, as well as every other part of the thorax, afforded the most satisfactory signs that no disease existed in the lungs. The inferior extremity of the trachea was observed to be tender to the touch, and the stethoscope elicited a sibilant rhonchus over a space of about three-quarters of an inch of its surface; beyond this it was healthy. On both sides of the larynx a hissing sibilant rhonchus was well marked. The sponge, saturated with a solution of the nitrate of silver, was now carried down the windpipe as low as the bifurcation of the bronchi, and immediately after its withdrawal the pain which he had so long suffered from, and so much dreaded, at once ceased, and the unpleasant feeling in the larynx and trachea were considerably relieved.

The sponging was repeated at the end of forty-eight hours; but he previously called my attention to the state of the chest below the right clavicle, where he still believed the lung was diseased, in consequence of a partial return of the pain. I again assured him that the disease of the windpipe was the source of the pain, which would dis-

appear as soon as the caustic was applied to the diseased surface. This he found to be the case, and was then more satisfied than on the previous occasion that the lung was in a healthy condition. The same plan of treatment was followed for three weeks, during which he also took five grains of the citrate of iron twice a day, and at the end of that period the disease was entirely removed.

I have seen him twice since. He was able to report most favourably of his health, and performed his duty with satisfaction and comfort to himself. This case is a good example of the uncomplicated form of the disease, having its origin in the larynx.

I am not aware that any writer has called attention to the pain which frequently accompanies this disease. It is common to all parts of the chest; but its ordinary seat is just below the clavicles, and so exquisitely painful is this part sometimes, that the slightest pressure of the finger or the stethoscope becomes insupportable. Repeatedly have I been compelled to abandon the examination of this part of the thorax, until it was relieved by sponging the larynx and trachea with a solution of the nitrate of silver, when percussion and auscultation could be proceeded with, without any discomfort to the patient.

The most severe form of this pain I ever witnessed was in a man. The case was obstinate; for, although each application of the caustic removed the pain, it returned again, sometimes in a

few hours. Its influence was most depressing ; so much so that several times he sent for his neighbouring relatives, as he believed he was dying. It was surprising to witness his utter despondency before the use of the caustic, and his exuberant joy after its application. In the course of a few weeks he recovered, and for the last two years has had no recurrence of the disorder.

The pain is occasionally felt in the arms, less frequently in the head, and once I met with it in the lower extremities. When it is present in those parts, it is found in the chest also. This pain has no special character by which it can be recognised ; but its origin is obvious, since it ceases as soon as the larynx is cauterised. When it attacks the chest, it is generally considered to arise from pleurisy, pleurodynia, or indigestion. Cupping, leeching, blistering, stimulating ointments, and liniments, are called into requisition. These sometimes afford relief to the unsuspected disease in the larynx and trachea ; but they not unfrequently fail, and the patient is farther subjected to unnecessary treatment.

This cannot be better illustrated than by a recital of the following case of ulceration of the laryngeal mucous membrane, in which three of the ordinary symptoms were remarkably prominent : hemorrhage, metallic resonance of the respiratory murmur and voice, and pain in the upper region of the thorax. The treatment usually resorted to wholly failed in producing permanent benefit in this case.

M. A., ætat. thirty-three years, a temperate man, had followed the occupation of a schoolmaster for several years. His parents were both dead, but they had however lived to an advanced age; his brothers and sisters were all living and healthy, and he himself had always enjoyed excellent health until the summer of last year; when, during the midsummer holidays, having spent a day in fishing, his feet got wet, from which he took a severe cold, and was confined to his bed for several days. He gradually recovered, with the exception of a troublesome cough and a little huskiness of the voice, which underwent no marked change until the school re-commenced. Now, from the necessity of using his voice more than he had done during the vacation, the hoarseness and cough increased, and he suffered from considerable pain below the collar bones.

His medical attendant, in consequence of this pain, thought it right to remove some blood from the upper part of the chest by leeches. As this afforded relief only for a short time, recourse was had to a blister, which was attended with only temporary benefit. About Christmas he was attacked with spitting of blood, and brought up not less than half a pint. The expectoration, which previously had been but slight, was now a little increased, and frequently streaked with blood; his breathing was impeded, and he had become thinner.

Feb. 12th. In consequence of bringing up a

tablespoonful of blood that morning, he determined on consulting me. He then complained of cough and expectoration of muco-purulent matter, with considerable pain in the upper part of the chest, together with great debility and loss of appetite. He was low-spirited, and felt much apprehension about the nature of his disease. His voice was hoarse, but less so than usual, having improved immediately after the discharge of the blood, and he thought his breathing had also become rather more free since that had occurred.

On examining the chest, the expansion of the upper part was slightly deficient, but equal; no dulness was observed on percussion. Below the painful part the respiratory murmur was natural, but a feeble sibilant rhonchus was perceptible below the right clavicle, which increased in loudness as the throat was approached, and over the larynx it was heard in the greatest intensity, associated with a respiratory murmur of a remarkably metallic tone. The windpipe was now sponged with a solution of the nitrate of silver of the ordinary strength, which afforded considerable relief to the pain in the chest, and to the hoarseness and cough also. This was repeated every other day for a month, then twice a week until May 20th, when the hoarseness and cough having entirely disappeared, and feeling himself well, he ceased to visit me.

TUBERCULAR LARYNGITIS.—Laryngitis in its ordi-

nary form, is a disease which readily yields, as we have seen, to suitable treatment, when it occurs in a tolerable healthy constitution. But, if it be neglected, it will linger for an indefinite period, and may eventually occasion tuberculisation of the lung. This view, although opposed to that of Louis and his disciples, is far from being unsupported in this country. But when the disease is conjoined to a scrofulous diathesis, or occurs in one who is subjected to the pernicious influences of unwholesome air and food, or whose habits have been intemperate, it then often becomes a source of phthisis.

The physician is frequently not consulted until extensive ulceration has ravaged the larynx and trachea; and, consequently, often too late to be of much service. The constitutional powers have then considerably declined, and although the appetite may remain tolerably good, and the circulation unquickened, digestion is rarely performed well. The cough and expectoration, the pain and discomfort, occasioned by speaking, so disturb and derange the economy, that the functions of the different organs at length fall into a state of decay; consequently, even if no tubercle previously existed in the lungs, the blood now becomes so depreciated in its healthy qualities as to give rise to that morbid product, which, sooner or later, is deposited in the pulmonary tissue. The patient finally sinks from a disease, which, but a few

months before was unknown to his organisation.

From this cause I am convinced phthisis often arises, with as much certainty as it does in those persons whose blood is imbued with the poison of tubercle from their birth, and who require but a slight exciting cause to bring it into an active state.

I was consulted in the autumn of 1848 by a wine-merchant, *ætat.* thirty-eight years. His father and mother were living, and he was not aware that any consumptive taint existed on either side. He was temperate notwithstanding his occupation, and had enjoyed robust health up to the winter of 1846, when, from being put into a damp bed, he took a severe cold, which was followed by hoarseness and rheumatism. Under the care of his medical attendant he soon improved, but the hoarseness returned from time to time, accompanied by a tickling cough and occasionally by expectoration. A blister to the throat would sometimes almost restore his voice, but in a few days it would be as bad as ever, until at last it settled down into a total loss of utterance, unless in a whisper.

He now complained of great oppression in breathing, as if a hair were in his throat, and experienced great pain below both clavicles. The cough had a hoarse barking sound; he expectorated a little muco-purulent matter sometimes streaked with blood; suffered from night perspirations, and was much thinner than usual. On a

careful examination of his chest, I was unable to detect any signs of disease whatever. Throughout the trachea the respiratory murmur was harsh, and over the larynx it had a rasping metallic sound. The diagnosis was ulceration of the larynx, and trachea, uncomplicated with disease of the lungs. The laryngo-tracheal tube was sponged with a solution of the nitrate of silver of the ordinary strength, which afforded immediate relief to the breathing, and removed the sensation of the hair in the throat, neither of which returned during the time he was under my care.

He complained of a pain shooting from the larynx into the ears after the application of the caustic; but this shortly ceased, and his voice became immediately stronger, and the pain below the clavicles entirely left him. This treatment was pursued for the following two months, applying the nitrate of silver twice a week, and twice in ten days, at the end of which period he was in every way greatly improved, the voice becoming much stronger, but requiring a great effort to bring forth a natural tone. The respiratory murmur recovered its healthy sound in the trachea, but in the larynx it was harsh and metallic.

I now lost sight of him for many months. He resided in a country town, and upon his calling again, he appeared to me as thin as when I first saw him. Feeling himself better, he had gone on a visit into Devonshire, and the long illness of one of

his children had occasioned his absence from London. His voice was much in the same state as when I saw him last; but the cough and expectoration had increased. On examining the chest the left side was less expansive than the right, and yielded a dull sound on percussion in a defined spot where a large mucous rhonchus was heard, with bronchophony and bronchial cough. The respiratory murmur on the right side of the thorax was coarse and bronchial. I heard about six weeks afterwards that he sank from phthisis, evidently occasioned by the laryngo-tracheal affection, which had been in existence three years prior to the detection of the tubercular disease in the lungs, and probably might have been removed, and the phthisis prevented, had the nitrate of silver been employed before ulceration commenced.

However speedily chronic laryngitis admits of cure in its early stage, it is removed with great difficulty when ulceration has established itself, and it becomes still more obstinate when it has occasioned tuberculous deposits in the lungs; indeed, it generally has then a fatal termination. Nevertheless, such cases do, in some rare instances, recover, and although we may perhaps be not entitled to hold out any hopes of such a nature to the patient or his friends, we are not to abandon the case, but are bound to exhaust every means we possess to arrest the destructive process.

True *tubercular laryngitis* is essentially a secon-

dary disease, and a not unfrequent accompaniment of tuberculous disease of the lungs. I believe with Louis that it is a consequence, and not a cause, of phthisis, although I venture to differ from him as to the mode in which it is developed. It is a curious fact that the ulceration in tubercular laryngitis is frequently found in the track which the secretion takes in its progress, from the cavity in the lung to the mouth, and, consequently, this has been thought to be the main cause in the production of the disease. However the secretion may aggravate and perpetuate it, I am disposed to doubt its power of generating the disease; otherwise tubercular laryngitis would probably be a more frequent complication of phthisis than it is, and would hardly be found out of the channel of the secretion, which it is when situated on the lingual surface of the epiglottis.

Louis* states that out of 35 cases of ulceration of the epiglottis, he only once detected it on the lingual surface. Watson observes,† “and when the epiglottis is involved in the mischief, the ulcers are situated, almost always, on its laryngeal surface alone.”

This does not accord with my limited experience, for I have rarely seen a case of severe

* *Researches on Phthisis.* By P. C. A. Louis, M.D., Syd. Soc. Pages 42 and 43.

† *Lectures on the Practice of Physic.* By T. Watson, M.D. 1848. Page 183.

tubercular laryngitis without finding the lingual surface of the epiglottis ulcerated. I speak of the severe form of the disease, for it is not until this variety has existed a considerable time, and is far advanced in the larynx, that the epiglottis is found ulcerated. Its presence here is shown by the organ becoming more irritable, particularly whilst fluids are swallowed, when it frequently flaps backwards with so much violence as to discharge them by the nose and mouth. When the disease has reached this point its destructive progress is very rapid; the wasting of the body is almost visible; it certainly accelerates the final catastrophe, if it does not become the immediate cause of death.

I am inclined to believe that the cough is often the first step in this disease. The amount of irritation it gives rise to in a naturally weak laryngo-tracheal tube is so great, that it at last occasions congestion or inflammation of that organ. If this condition be once established, the vitiated state of the blood is alone probably sufficient to perpetuate it. The morbid part undergoes further irritation by the poisonous secretion of the lungs floating over its surface, and at length, by these combined causes, ulceration is developed. No doubt the secretion of the lungs is an important element in the progress of the disease, but I doubt, for the reason before stated, that it is the primary cause.

The affection locates itself in and about those parts most occupied by the mucous crypts, and

may, as Dr. Hodgkin* believes, commence in them. If a suitable treatment is employed at the first outbreak of the diarrhœa, or when there is only a threatening of the attack, the congestion or inflammation of the mucous membrane of the bowels may be speedily checked, if not altogether removed, as we see occur in the follicular enteritis of phthisis; and thus a most formidable complication is delayed, even if it be not cured.

Tubercular laryngitis, in its earliest stage, should be met by the most vigorous treatment, and I know of no means so capable of arresting or removing it, as sponging the windpipe with a solution of the nitrate of silver. The following case of an army surgeon, given in his own words, will illustrate the foregoing observations:—

“I returned from India in 1846 on sick certificate, having suffered for about two years previously from pulmonary disease. On leaving India the symptoms were as follow:—Cough with copious muco-purulent expectoration, occasionally mixed with blood; frequent pain in the upper portion of left chest, increased on deep inspiration; much prostration of strength, and considerable emaciation. After my arrival in this country, and until the autumn of 1847, the change of climate seemed to agree with me, and I gained considerably both

* Lectures on the Morbid Anatomy of the Serous and Mucous Membranes. By T. Hodgkin, M.D. London, 1836. Vol II., page 70.

in health and strength, up to the beginning of October, when I was suddenly attacked with acute inflammation of the left lung.

“This attack yielded to active depletion, &c., but left me in a very weak condition. In the beginning of 1848 I had so far recovered as to be able to travel from Scotland to London for the purpose of placing myself under the treatment of Dr. Hastings. About a week after my arrival I was again attacked with acute inflammation of the lungs, in which the larynx and trachea appeared to have sympathised.

“At the commencement of the attack the symptoms were as follow:—Pains in the clavicular portion of the left side of the thorax, extending downwards; hurried and difficult respiration; inability to expand the chest, almost in the slightest degree, also when lying on the left side and back; quick pulse; much prostration of strength, and extreme emaciation. I derived the greatest and almost immediate relief, when suffering from difficulty of breathing, from having the larynx and trachea sponged with a solution of the nitrate of silver. This attack gradually yielded to the treatment employed, when I was put on a course of the pyroacetic spirit, and cod-liver oil.

“This treatment has been continued at intervals ever since, and to which I may attribute my restoration to my present state of health. I am now so far recovered as to be able to proceed to

India for the purpose of resuming my duties. I may add that I have taken the pyro-acetic spirit in doses varying from 15 to 70 minims, three times a-day."—16th May, 1850.

The writer of the above was, when he consulted me about two years and a half ago, under forty years of age, and weighed 10 st. 6 lb.; he now weighs 11 st. 4 lb. When I first saw him he had a large gurgling cavity in the upper lobe of the left lung; two or three of his medical friends laughed at the bare idea that any substantial good could be done for him. After completely removing the inflammation in the larynx and trachea, by sponging that passage twice a week with a solution of the nitrate of silver for three months, the disease in the lungs appeared gradually and steadily to diminish; and although at Christmas last, and for some time previous, he had lost all the general symptoms of phthisis, the cavity, which then was dry, and much smaller, was, however, still very evident. But now it has entirely disappeared—slight bronchophony is heard over its former seat, and more or less imperfect respiratory murmur exists in the upper portion of the lung, with considerable flattening of the superior part of the left chest.

Although so much better at Christmas, the physician who presides over the medical department of the East India Company's affairs at home objected certifying to his fitness for returning to India; but now, finding the chest in so satisfactory a state,

he granted the permission. My object for inserting this case here, is for the purpose of showing the great advantage to be derived from sponging the laryngo-tracheal tube with the nitrate of silver in the early stage of tubercular laryngitis, and not the successful issue of a far advanced case of phthisis; as I apprehend, the numerous recoveries from the latter disease which have been published of late, must have gone far towards breaking down that pernicious doctrine, that all cases of phthisis are irremediable. It is a curious fact in my medical friend's case that the pyro-acetic spirit never seemed to benefit him in less than drachm doses.

I have learned that in some cases of tubercular laryngitis the treatment has been abandoned in consequence of the pain and irritation it sometimes occasioned, without affording any adequate relief. I believe, in most instances where such results have happened, that they were cases in a very advanced stage of the disease, in which a large surface was ulcerated; but this is no proof that the affection would not have been benefited by the treatment at an earlier epoch, nor was it a sufficient reason why it should be laid aside altogether.

In the numerous cases of tubercular laryngitis in which I have employed this treatment, I have met with some patients in whom it was unproductive of benefit, and others (and these very rare cases) where

its use was attended with increased suffering to the patient. That it is productive of much good in this disease, and is a valuable adjunct in the treatment of phthisis, no one, I believe, will deny, after giving it a sufficient trial.

But amongst the ranks of medical men, persons are sometimes met with who are wholly unfit to be trusted with the employment of new agents possessing great activity in the treatment of disease, until they have had some practical training. No active drug or other remedial agent that was ever introduced into the practice of medicine, but had indications and contra-indications for its use; yet how often are these disregarded, and the most valuable means brought into disrepute through the bungling manner in which they have been employed.

If a solution of a drachm or half a drachm of the nitrate of silver in an ounce of distilled water occasions pain and suffering from its introduction into an ulcerated larynx and trachea, this is no reason why a much weaker solution should induce the same distress, and consequently the latter should be tried before the treatment is abandoned. Nevertheless, cases may occur in which the solution, however weak, and carefully introduced into the wind-pipe, may give rise to pain and irritation without a compensating benefit. In such cases it will be far better to be guided in the persistence in its use by the feelings of the patient than by any other test;

for when it affords relief, the amount is generally so great, that the patients frequently express a strong desire for its repetition before the time arrives for its being repeated. On the contrary, if no relief or benefit accrues, the choking sensation it gives rise to for the moment always occasions a sufficiently uncomfortable feeling to determine the patient against the continuance of the treatment.

Mr. G. A. G——, ætat. twenty-seven years, the manager of a hardware-shop in London, placed himself under my care, Sept. 10th, 1848. He was a temperate, well-conducted man, born in London, of healthy parents, who were still living. In the summer of 1847, without any perceptible cause, a dry cough came on, and expectoration showed itself two or three weeks later; this was shortly followed by hæmoptysis to the amount of about half-a-pint, and recurred, but in much smaller quantities, several times in the ensuing twelve months. Nocturnal perspirations were frequent, and the breathing was oppressed when ascending a staircase, or making any great physical exertion. He gradually became weaker and thinner, and during the last three months had suffered from hoarseness.

He now appeared wasted and feeble, and spoke in a whisper; his pulse and respiration were both accelerated. He complained of cough, difficulty of breathing, and of pain below both clavicles, and occasionally in other parts of the chest; the expecto-

ration was not great, but presented a muco-purulent character, and was occasionally streaked with blood. The night perspirations, which were severe six months ago, and occurred every morning in bed, now took place irregularly, and were much slighter. The appetite was deficient, and he was very desponding. The expansion of the upper part of the chest was diminished, but more particularly so over the left side, where there was the greatest amount of dulness on percussion.

Below the acromial end of the left clavicle pectoriloquy was distinct, and here also was heard a cavernous rhonchus; elsewhere the respiratory murmur was bronchial; and it was bronchial also on the right side, as far as an inch-and-a-half below the clavicle. Over the lower part of the trachea a sibilant rhoncus was heard, as well as over the larynx, and the respiratory murmur here had a metallic sound.

A solution of the nitrate of silver of the ordinary strength was carried down to the bifurcation of the bronchia. A little irritation followed; but in a short time great relief was experienced in respiration, and the pain below the clavicles immediately ceased. The despondency from which he suffered a few minutes before, had given way to a feeling of cheerfulness, such as he had not felt for a considerable time. This plan of treatment was followed two or three times a week until the 19th December, without any interruption to the progressive im-

provement of the case. The voice had now recovered its natural tone, the cough, expectoration, and night perspirations had ceased; the appetite was natural, and the patient gained both flesh and strength.

The upper part of the chest expanded more freely, and yielded a clearer sound on percussion; and where the cavernous murmur and pectoriloquy existed, tubular respiration and bronchophony were heard. The metallic respiratory murmur and sibilant rhonchus in the larynx and trachea were replaced by a healthy sound. He again consulted me August 4th, 1849, in consequence of a return of all his former symptoms. Finding himself so well at Christmas he got married in January, and it was not until he took cold about six weeks ago that he suffered from cough, which was quickly followed by expectoration, hoarseness, night sweats, and wasting. The former plan of treatment was again had recourse to, which comprised, besides the local application of the nitrate of silver—pyro-acetic spirit and olive oil. He again underwent a rapid and steady improvement, and in November appeared almost well.

Jan. 7th, 1850. The hoarseness and cough returned, and the nitrate of silver began not only to fail in affording him the usual relief, but to occasion considerable pain on its introduction into the larynx, and a weaker solution relieved the hoarseness, but for a few days only; its strength was

further diminished, without benefit, however, and it was, consequently, laid aside. Diarrhœa manifested itself from time to time, accompanied by great pain and tenderness of the abdomen, and was checked and relieved by astringents, sedatives, counter-irritation, and a carefully regulated diet. During the last two or three weeks of his life every time he drank, some portion of the fluid was thrown back by the nose and mouth. His cough became less troublesome, and the expectoration was of small amount. He died on the 11th of May, and a *post mortem* examination was made on the following day by my friend Mr. Hudson.

The larynx and trachea were carefully removed, and the lingual surface of the epiglottis was found to be covered with ulcers of variable size. The laryngeal surface was in the same state, except that the ulcers were larger and deeper. The epiglottis was thickened, and its edges irregularly festooned by the destructive process of the ulceration. The vocal cords were involved in the same condition, and the ventricles of the larynx were filled with a muco-purulent matter. Some of the follicles appeared enlarged, and their centre in a state of ulceration. The trachea was healthy, with the exception of a patch of ulceration at its inferior and posterior extremity. The upper part of both lungs contained several small cavities, but there was a large amount of healthy pulmonary tissue. The mucous membrane of the

bowels had undergone extensive ulceration. These embrace the chief morbid appearances found after death.

I regard this as a genuine case of tubercular laryngitis, following a tuberculous affection of the lungs, in which the local application of the nitrate of silver was very beneficial—the disease having disappeared for nine months after ulceration had established itself in the larynx.

HAY FEVER.—There is another disease of the air passages termed hay fever or hay asthma, in which this treatment will be found very useful. The disease in its severest form is common in June, about the period hay is making, and there can be no doubt but that in some peculiarly constituted persons an emanation from the hay, the exact nature of which is unknown, occasions an attack of the disorder. But it is a common affection at other seasons of the year, particularly in those who have repeatedly suffered from it, and there can be no doubt that its occasional development is owing to other causes than the hay. The disease, however, exists under two forms—the catarrhal and the asthmatic: these will be better understood by considering them separately.

CATARRHAL HAY FEVER.—The catarrhal form, which occurs at all seasons of the year, but more frequently about the time the hay is making, usually begins with slight fever. A sensation of fulness

and heat are felt in the fauces, pharynx, and nasal passages; respiration is obstructed, or performed with much discomfort when the mouth is closed, in consequence of the swollen state of the mucous membrane in the upper part of the nose, which so blocks up the passage, that the air, if it can pass at all, can do so only with the greatest difficulty. The eyes become so weak that it is impossible to read or look at any bright object but for a short time, and pain is felt in the forehead over the region of the frontal sinus. The voice is husky, and there is more or less cough.

When these symptoms have existed for a few hours, paroxysms of sneezing come on, which are rapidly followed by copious effusion of serous secretion poured forth from the nose and eyes. After a few days the symptoms become less severe, and the patient gradually recovers. In some cases it recurs in paroxysms during the warm season; in others, the patient only gets relieved from his sufferings by proceeding to the sea side, where he escapes from the pernicious influence of the hay fields.

This affection is more amenable to the application of caustics to the irritated and inflamed membrane than to any other mode of treatment that I am acquainted with. The larynx and trachea, as well as the pharynx and posterior fauces, must be freely sponged with a solution of the nitrate of silver of the ordinary strength. The nasal passages

must also be subjected to similar treatment, but the strength of the solution may be considerably diminished for these parts. The citrate of iron combined with a sedative, such as hyoscyamus or humuli, will be found useful; or a minim of chloroform, rubbed down with two or three grains of magnesia, and made into a draught with a little distilled water, and taken two or three times a day, has a very beneficial and soothing effect. Food of a light description only, and that easy of digestion, should be taken, and every kind of stimulating drink must be strictly forbidden.

In May, 1849, I was consulted by a young lady who had for several years suffered from hay fever. She had had repeated attacks during each year, but those occurring in June and July were always the severest. At this period they were not only more violent, but were always attended with increased difficulty of breathing. The present attack was less severe than usual, but she was persuaded that unless something was done to arrest it immediately, it would soon become much worse.

She complained of a sensation of heat and fulness of the fauces and nasal passages, accompanied with slight cough, frequent sneezing, great defluxion from the nose, pain in the region of the frontal sinus, inability to breathe through the nostrils, and was weak and feverish. The fauces, pharynx, and larynx were sponged with a solution of the nitrate of silver of the usual strength. The same solu-

tion was also applied to the nasal passages, from which she experienced great relief. Five grains of the citrate of iron were prescribed twice a day in a little distilled water, and she rapidly recovered.

ASTHMATIC HAY FEVER.—The asthmatic form of the disease occurs more frequently in summer, and generally attacks persons who have passed the meridian of life; it is usually preceded by the catarrhal form, which is always more violent when accompanied by the asthmatic, than when it exists as a solitary affection. Difficulty of breathing, partaking of a spasmodic character, is sometimes complained of, coincident with a sense of tightness and constriction of the upper part of the chest, and pain below the collar bones. Heat and soreness are felt in the larynx and trachea, which are sometimes tender to the touch; cough is experienced, and a frothy serous secretion is brought up; more or less hoarseness is generally present, and the patient is feverish and restless.

The treatment indicated in this affection is the same as that employed in the other; and it will generally be found that the asthmatic disorder yields more readily to treatment than the catarrhal form of the affection.

In March of the present year I was consulted by a lady, the mother of the foregoing case of catarrhal hay fever, in consequence of the good effects which followed the treatment in her daugh-

ter's case, who, I learned, had not suffered from the disease since her recovery in the previous May. This lady had been a martyr to hay fever for several years. The earlier attacks were mild, and unattended with those feelings of great difficulty of breathing, and tightness and pain in the upper part of the chest, which characterised the later ones. She was between fifty and sixty years of age, a most intelligent person, and had done everything that was recommended to protect herself from this malady, and to preserve her health generally.

The attack she at this moment laboured under, had continued with great severity for many months. She had wintered at Torquay, where the mild climate of that district had been too relaxing for her feeble condition, and tended to keep up the disease. Of this she was aware, but the desire of improving a daughter's health was the cause of her neglecting her own. She complained of tightness, oppression, and pain in the upper part of the chest; and was apprehensive that some serious disease existed in the lungs, in consequence of heat and soreness in the throat and windpipe, fulness and stuffing of the upper part of the nose, with an impossibility of breathing through the nostrils.

The sight of the right eye was impaired in consequence of the incessant irritation of the conjunctiva; the paroxysms of sneezing were most distressing and debilitating, and continued unceas-

ingly for several minutes. The serous discharge from the nose and eyes was very copious, and sometimes preceded fits of difficulty of breathing. Her general health was consequently much enfeebled and impaired. The upper part of the chest, which only was examined, elicited an equal and tolerably healthy sound on percussion. The respiratory murmur, which was defective in volume, had a healthy tone, and there was a little deficiency in the free expansion of the upper part of the thorax. The respiratory murmur of the larynx and upper part of the trachea was harsh, and closely approximated to a sibilant rhonchus.

The same plan of treatment was employed in this case which had proved so successful in the previous one, but its good effects were not so quickly perceptible. After the third application of the caustic to the windpipe, all the laryngeal and thoracic symptoms disappeared, but the catarrhal ones, particularly those of the nasal passages, required a much longer persistence in the treatment. At the end of six weeks, however, she was able to return home to the country with comfort.

The affection known as "cold in the head" resembles in many of its symptoms, hay fever. This troublesome complaint is speedily arrested by sponging the nasal passages with a solution of the nitrate of silver; the discharge from the nose is immediately checked, and the affection rapidly disappears.

Simple congestion of the laryngeal mucous membrane frequently occurs in the aged, and gives rise to a very troublesome cough, and to more or lessropy albuminous expectoration. An affection of the kind is often met with in long standing paralytic cases. The relaxation of the capillaries in this region reaches its fullest extent after the first sleep, when the cough becomes most distressing. It sometimes has a spasmodic character from the irritability of the epiglottis; when this is the case, choking often accompanies the act of swallowing.

The cough, in these cases, resists all kinds of soothing treatment, unless anodynes are administered in such doses as to blunt or annihilate the morbid sensibility of the part, in which case the remedy may with truth be said to be worse than the disease, as it generally destroys the appetite, and disturbs the secretions. Great and immediate relief will be experienced by the application of a solution of the nitrate of silver to the part, which may be repeated from time to time, according to the necessities of the case.

SYPHYLITIC LARYNGITIS.—The few cases of this disease which I have seen were treated with the bicyanuret of mercury. They were all characterised by a respiratory murmur, having a metallic note over the larynx, which I have before observed to be common and peculiar to ulceration of the mucous membrane of this region. The solution of the

nitrate of silver is worse than useless in this affection, for, instead of affording relief, it adds to the irritation. But I have found that a solution of the bicyanuret of mercury applied to the ulcerated surface, of the strength of half a drachm of the salt to an ounce of distilled water, was attended with the most beneficial results.

It occasions a considerable amount of smarting on its application, which continues for some little time; but the relief, of which the patient is conscious, is so great that he is always anxious for its repetition. In those cases in which the disease usually extends to the fauces, pharynx, and nasal passages, all these parts must be freely sponged with the solution of the bicyanuret of mercury, which is readily performed by passing the sponge over the tonsils, if any ulceration exists there, to the pharynx, and behind the velum into the posterior nares. A smaller sponge must be used for the other nasal passages. If this is repeated twice a week, it will generally be found often enough; but it must be persisted in until the disease is entirely removed.

The local treatment may be conjoined with the internal administration of the iodide of potassium, citrate of iron, and aperients. Hence we see that inflammation of the larynx and trachea is not only a serious, but often a fatal affection in itself, as well as being the first step to some of the more important thoracic diseases.

APPENDIX.

LARYNGISMUS STRIDULUS ; OR, THE CROWING DISEASE OF INFANTS.

The early symptoms of most diseases pass unobserved, or else they are so imperfectly noticed that they do not make that impression which is necessary for the purpose of seeking professional aid. Were it otherwise, how often would disease be crushed at once, instead of becoming unmanageable through delay, and at length defying all the resources of our art ?

This circumstance very frequently occurs in the disorders of infancy and childhood ; but, perhaps, in none of them more frequently than in the one under consideration. Among the earliest symptoms which manifest themselves in laryngismus is the “catching of the breath,” and this frequently continues for some time without creating any alarm either to the mother or the nurse. It often comes on from tossing the child a little too violently, and mild attacks arise from laughing, swallowing, and other apparently trivial causes. In such cases recovery

often takes place without any special or particular treatment. The attendants generally regard it as a mere trick or habit the child has contracted, and not until it is attacked by a severe paroxysm of crowing inspiration do they take fright and fly for assistance.

The age at which children are most liable to suffer from this disorder ranges between the sixth and eighteenth month. It, however, is frequently met with at a much earlier as well as at a much later period. I had an infant under my care only three weeks old, labouring under well marked symptoms of the disease, and, at the same time its sister, a child of twenty months, was under treatment for the same complaint.

Laryngismus stridulus attacks males more frequently than females; is much more common in the cold than in the warm season; its duration is very uncertain, lasting in some instances but a very short time, in others for weeks and months, and again in others disappearing during the summer to return the following winter. There is also much variety in the frequency of the fits. Sometimes they recur every hour, and even more frequently, during the day, besides disturbing the child several times in the course of the night. At other times only one paroxysm will take place during the twenty-four hours.

The disease is often first noticed on the infant's awaking in the morning, or on its being suddenly

startled from its sleep by a noise. The child throws its head back, raises its chest, and struggles for breath. After repeated efforts to inspire, accompanied by a crowing inspiration, the child recovers its power of breathing, and bursts into a fit of crying, which is sometimes followed by sleep, and the little patient wakes up apparently well. Crowing is very unlike the noise which a child makes when suffering from croup; nevertheless, it impresses the hearer with the belief that the air is passing through a very narrow passage.

The countenance, during a paroxysm of this disease, expresses great anxiety; the face is flushed, purple, and swollen from the turgescence of its vessels; the eyes are wide open, and staring from the repeated efforts at inspiration. The arms are thrown out from the sides of the body, the thumbs drawn into the palms of the hands, tightly clasped by the fingers; this contraction sometimes lasts for a considerable period after the paroxysm has subsided. The lower extremities are stiffened, and the toes and feet are bent downwards and inwards, during the fit. The rectum and bladder are not unfrequently emptied of their contents.

As the disease advances, the child, instead of recovering after the fit, remains dull and heavy for two or three hours, the sleep becomes restless, the appetite deficient, and the secretions from the bowels unhealthy. The little sufferer rapidly emaciates, and unless death ensues from the primary disorder,

closure of the glottis, sufficiently long to produce asphyxia, will occasion that fatal event.

The most ordinary fatal complication is congestion of the brain, which gives rise to convulsions; and congestion of the pulmonary organs is not an unfrequent sequence of the disease. It is said to attack chiefly those children who are weakly and irritable, and whose food is deficient in nourishment. I must say, as far as my experience goes, the parents of the majority of the little patients have been in that position which enabled them to have their children well attended to in respect of food, and other circumstances connected with their general health. Neither did the parents or children exhibit any traces of unusual weakness or irritability.

Dentition is regarded as a very frequent cause of the complaint; most probably its irritating effects has been much over-rated; for, be it remembered, that the epoch at which the disease is most common is the period when dentition is especially troublesome; and hence we may infer, that the disorder would be more frequently met with than it is, were dentition one of the principal causes of its development. The children of some parents are singularly predisposed to attacks of laryngismus stridulus. Indeed, cases are recorded where every child in the family has been swept off by this disease.

In those children who are predisposed to thi^s

affection, a very slight exciting cause is sufficient to induce a fit: as, for example, laughing, crying, drinking, straining, or, indeed, any circumstance which gives rise to a sudden and prolonged inspiratory effort. In some cases, where the nurse is dandling, tossing, or feeding the child, a paroxysm will suddenly manifest itself; or it may follow irritation or vexation; or be brought on through a little bronchitis from cold.

It has sometimes been observed to be consequent on the disappearance of cutaneous eruptions, particularly when they have been situated behind the ears, or on the scalp. And there can be but little doubt that the disease is more common in large towns than in rural situations.

Dr. John Clarke attributed the disease to congestion of the brain; Dr. Ley to enlarged cervical and bronchial glands; Mr. Hood to hypertrophy of the thymous gland; Sir Henry Marsh to an affection of the par vagum; Dr. Reid to errors in diet; Dr. Marshall Hall to dentition; Dr. Burgess to cold, dentition, or gastro-intestinal irritation; and Mr. Kerr to low states of the temperature. No doubt the operation of many of these causes gives a predisposition to the constitution for the disease, but the principal one, I believe, to which its immediate development is due, is cold. I have generally been able to trace it to this cause; and we know it is a disease of the cold season of the year.

Of the real nature of laryngismus stridulus but

little is known beyond its being a nervous affection, no lesions of any kind having been observed in the laryngeal region; and although it is sometimes accompanied by enlargement of the glands in the neighbourhood, this complication occurs so seldom that it cannot be ascribed to that cause. Dr. John Reid has thrown more light upon the nature of this disease than any previous observer, in the experimental investigation of the functions of the eighth pair of nerves, which he published in the 49th volume of the "Edinburgh, Medical, and Surgical Journal."

In his "Experiment XVIII. the larynx was exposed, and the glottis of a dog brought into view, immediately after it had been killed with prussic acid.

"On applying the galvanic wires to each of the recurrents alternately, violent movements of the muscles followed, and the arytenoid cartilages were first seen to approach each other, and then recede. No effect of the kind followed the galvanising the superior laryngeals. The movements which followed irritation of the trunk of the par vagum were not so strong as those from irritation of the recurrent itself." Again he says:—

"One of the recurrent nerves was first cut across, with the effect of evidently diminishing the movements of the arytenoid cartilage of the side cut. The other recurrent was then divided, and instantly all the movements of the muscles of the

glottis ceased. The superior laryngeals were then cut, without effecting the slightest enlargement, or any other change upon the glottis." And further:—

"This nervous circle we may suppose to begin at the mucous surface of the larynx, to pass upwards through the filaments of the superior laryngeals to the medulla oblongata, and back again to the muscles through the filaments of the recurrenents," and "that when irritation is applied to the mucous membrane of the larynx, in the healthy state, this does not excite the contraction of the muscles which move the arytenoid cartilages by acting directly upon them through the mucous membrane, but that this contraction takes place through a reflex action, in the performance of which the superior laryngeal is the sensitive, and the inferior laryngeal is the motor, nerve."

It appears to me that several of Dr. John Reid's experiments, instead of supporting this reflex theory which he has propounded, are in direct opposition to it. Take, for instance, Exp. XVIII., in which it appears that when the galvanic stimulus was applied to the superior laryngeal nerves, neither contraction, expansion, nor any change whatever, was perceptible in the appearance of the glottis. Whilst, in order to support his doctrine, the stimulus applied to the superior laryngeal nerves should have passed to the medulla oblongata, thence to the muscles of the glottis, through the inferior laryn-

geal or recurrent nerves, and have given rise to violent movements of the glottis.

However much we may deny that his experiments do not justify the theory he has laid down, there can be no doubt that they support the conclusion that irritation applied to the inferior laryngeals or recurrent nerves occasions closure of the glottis—a condition considered to be the essence of the disease before us. I cannot help, however, regretting that he did not enter into an experimental inquiry as to what nerves regulate the opening and shutting of the epiglottis, as I am disposed to believe that this part is involved in the disorder.

The crowing so peculiar to laryngismus stridulus differs considerably from the sound occasioned by croup, or that heard in acute laryngitis. I am aware that in the former disease the *cordæ vocales* have undergone no perceptible change from their natural appearance, whilst in the latter they are thickened, from the engorged state of their blood vessels, and from the inflammatory exudations which have been deposited on their surface. In some cases there is, however, evidence that the epiglottis suffers from irritation. I have not observed this myself, but it is stated by Kerr* that, in the most violent cases, he had seen the fluid, which had been taken by the mouth, rejected through the

* Edinburgh Medical and Surgical Journal. No. 49, p. 345.

nares, when there had been no indication of soreness of the throat, and which symptom he considered as one of a paralytic nature, but which I believe arose from the epiglottis being suddenly thrown back by the irritation of the fluid on its lingual surface, in consequence of morbid sensibility of the organ.

The diagnosis is readily made in the early stage of the disease, and in mild cases; but when it is complicated with cerebral and pulmonary congestion, it becomes more difficult. It begins without any premonitory cough or fever, unless it is accompanied by slight bronchitis; during the intervals of the paroxysms there is an absence of all difficulty of breathing. Croup, on the contrary, begins with cough and oppression of the breath, and is marked with much high action and stridulous respiration. *Laryngismus stridulus* generally commences in the morning, croup at night. The most inattentive observer could hardly mistake it for whooping-cough or hydrocephalus.

I have not thought it necessary to examine or give an account of the treatment which has generally been adopted in this disease; as it is my object to lay down another that has answered so well in my hands, that, should it be found equally successful in those of the profession, it will probably become in a short time the ordinary mode of treating this affection.

That the general treatment of *laryngismus stri-*

dulus has signally failed in numerous cases there can be no doubt, for we find Dr. Gooch estimating its mortality as high as one-third. But admitting that this is over-stated, there can be no doubt that it is a very fatal complaint of infancy.

During the winter, about two years and a half ago, my advice was sought for a child ten months old, suffering from laryngismus stridulus. The mother had at the same time a child under my care labouring under whooping-cough, which was treated by the application of a solution of the nitrate of silver to the larynx. As this affection appeared to me to resemble whooping-cough in many of its leading features, I determined to try what local treatment would do for it, and at once sponged the glottis and epiglottis with a solution of nitrate of silver of the strength of one scruple to an ounce of distilled water.

It was done without any difficulty, and without any marked distress to the infant, and was repeated the following morning ; but as no appreciable benefit was observed, its use was discontinued. On the third morning I substituted a saturated solution of the bichloruret of mercury, for the solution of the nitrate of silver, having previously made myself acquainted with its soothing effects when applied to the glottis. On the fourth morning the mother gave an excellent account of her child ; it had had but two slight fits during the past twenty-four hours, instead of suffering from twelve or fourteen attacks,

as had previously been the case. The infant sucked much better, and passed a good night. The local treatment was employed daily for the two following days, then every other day for a week ; and, as the child had scarcely had a fit after the first twenty-four hours since the treatment with the bicyanuret of mercury had been commenced and had regained its healthy appearance, the remedy was consequently discontinued. I saw this child many months afterwards looking plump and well, having had no return of the disorder.

So gratified was I at the result of the treatment in this case, that I have pursued the same plan ever since, and, excepting in one instance, with uniform success. I have treated in all fifteen cases ; the bulk of them have recovered as quickly as the one above mentioned ; and in those that were slower in regaining their health, the severity of the symptoms rapidly diminished, lingering only with a slight amount of the disease ; but these in no case lasted over a month. The case which had a fatal termination was complicated with congestion of the brain, and can hardly be said to have been under my care, as the child died the day after I saw it from cerebral convulsions, from which it had repeatedly suffered.

In order to guard myself against any error which might be drawn from the treatment employed, I determined to dispense with the use of all other remedial agents, whilst this system was adopted, so

that the results could not be attributed to any other means than the single one had recourse to; merely recommending a little aperient medicine to be given if necessary, and that the children who had been weaned should be carefully and plainly fed, and suitably clad. The solution of the caustic must be well applied both to the glottis and epiglottis. In the cases treated by me the paroxysms became much milder after the first application of the remedy. If farther experience confirms these facts, I believe it will prove indisputably that the disease is situated in the superior or inferior laryngeal nerves, or in both. As the cases so strongly resemble each other, and the treatment pursued was unvarying, I shall content myself with the recital of only one more.

John Slack, a child nine months old, residing in the Queen's Mews, was brought to me by its mother, April 22, 1850. She informed me that he was a fine child at birth, and continued to thrive until he was two months old, when he was attacked with whooping cough, from which he recovered in about three months; this was immediately followed by laryngismus stridulus. She observed the child to have a "catching of the breath" just as it awoke out of its sleep in the morning. She immediately procured medical assistance for the little boy, notwithstanding which the disease gradually increased; the crowing spasms, which formerly occurred only in the day, latterly broke the child's rest during the

night, and as she was told nothing more could be done for the child, she sought further assistance, believing that her infant would eventually be destroyed unless some means could be devised for removing the disorder.

The mother had a deficiency of milk, so that the infant was only partially nursed, its food being made up with asses' milk. Latterly the fits had increased so much in frequency, that the most trifling causes were sufficient to give rise to them; such as putting on a napkin, laying the child down, or suddenly taking it up; and it invariably had an attack after every sleep. For some time past she had observed that the thumbs were drawn into the palms of the hands, and the feet were turned inwardly, whilst the infant was suffering from a paroxysm of the disorder. The child's bowels were generally confined, and it had become pale and emaciated.

The infant now looked blanched and weakly. I examined the mouth, but could find no teeth that were irritating the gums. The larynx was well sponged with a saturated solution of the bichloruret of mercury, without occasioning the slightest spasm, the mother evidently looking for something of the kind to occur.

April 23rd. The little patient was improved in appearance, had scarcely had a crowing fit since the application of the caustic, and had not slept so well for the previous two months.

24th. The child had not suffered from crowing or

“catching of the breath,” during the last twenty-four hours. After the sponging this day, the infant was purposely laid down upon a sofa in my consulting-room, to see if it would occasion a fit; the child cried in consequence of leaving its mother’s arms, but nothing approaching to a fit occurred.

From this time the little patient gradually improved. I saw it from time to time; and, as the application of the caustic was unattended with any discomfort or disturbance to the child, it was generally applied at every visit, and was probably used oftener than there was any real necessity, but it was thought better to err on the safe side, if at all. The child is now a very fine plump little fellow.

July 12th. About ten days ago the child took cold, which occasioned a little bronchitis, and, as there had been once or twice a slight return of crowing, the mother brought the infant to me in consequence. I again examined the gums, but could discover no teeth approaching the surface. The solution of the bicyanuret of mercury was introduced into the larynx every other day for the past week, and the child is now well.

THE END.

